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ECONOMIC, FINANCIAL AND TRANSIT  
DEPARTMENT

# The Future Population of Europe and the Soviet Union

Population Projections  
1940-1970

BY

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LEAGUE OF NATIONS, GENEVA, 1944



Series of League of Nations Publications

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II. ECONOMIC AND FINANCIAL

1944. II.A. 2.

## PREFACE

IN January 1939 the Council of the League of Nations, in execution of a resolution adopted by the Assembly, appointed a committee to study demographic problems in their economic, financial and social setting, and to submit a report on the subject which might be of practical value to governments in the determination of their policies.

This committee met a few months later and approved a general plan of work, proposing to concentrate at first on the three following groups of questions:

- (a) The problems which present themselves in countries with rapidly increasing populations;
- (b) The problems which present themselves in countries with or threatened with diminishing population; and
- (c) The problems which present themselves in countries with a population which is small relatively to the productive area or to the natural resources.

After the outbreak of war it proved impossible to convene the committee, and for a time there were grounds for fearing that the whole undertaking would have to be postponed indefinitely. This would have been all the more regrettable as there has been little systematic international analysis of demographic phenomena similar to the analysis of economic phenomena that has been made by the League during the last twenty years, and such an analysis is as essential for the determination of policies after this war as it was before the war. Fortunately, owing to the courtesy and helpfulness of President Harold W. Dodds of Princeton University, these fears have proved groundless; for he was good enough to arrange for the University's Office of Population Research, under the direction of Professor Frank W. Notestein, to undertake an extensive programme of research and analysis for the League.

This present volume on the Future Population of Europe and the Soviet Union is the first of a series now in course of preparation. As will be seen from the Table of Contents, it deals not only with population projections, but *inter alia* with two of the

three questions to which priority was given by the Demographic Committee.

The thanks of the League are due at once to President Dodds for the arrangement he was good enough to make, to Professor Notestein and his colleagues who have undertaken the arduous work involved, and to the Carnegie Corporation of New York, the Rockefeller Foundation, and the Milbank Memorial Fund for the financial support which in one manner or another they have afforded.

A. LOVEDAY

Director of the  
Economic, Financial and  
Transit Department

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December, 1943

## ACKNOWLEDGMENTS

FEW books are the exclusive work of their signers, and this one is less so than most. It represents the joint efforts of almost the entire staff of the Office of Population Research, carried on in close cooperation with the Economic, Financial and Transit Department of the League of Nations. The writers are particularly indebted to Dr. Alexander Loveday, Director of the Economic Department of the League, at whose suggestion the project was undertaken. He has given invaluable counsel and criticism at all stages of the work, while according such complete freedom to the writers as to exempt him from all responsibility for any errors of fact or interpretation.

One of the authors is in the unusual position of being chiefly responsible for the core of subject matter of the study without having participated in either the interpretation or the presentation of the material, indeed, without having had an opportunity to read the manuscript. Lt. (j.g.) Ansley J. Coale, U.S.N.R., formerly of the Office staff, is almost exclusively responsible for developing the methods by which the population projections were obtained and for supervising their computation. His entry on naval service made impossible further participation in the work. The other authors have worked in such close collaboration that the analysis and interpretation throughout must be considered the joint product of their efforts. They gratefully acknowledge the assistance of their staff colleagues: Dr. Frank Lorimer, for the basic data relating to the Soviet Union and for his many valuable suggestions; Dr. Kingsley Davis, for criticism of sections of the manuscript; and the statistical and secretarial assistants who carried the heavy burden of detailed work with ability and diligence. Special thanks are also due to Dr. David V. Glass, formerly of the London School of Economics, for his helpful suggestions, the use of unpublished bibliographical material, and of unpublished population projections of his own construction.

Finally the authors wish to express their appreciation to the Carnegie Corporation of New York and to the Milbank Memorial Fund for financial support that made this study possible: to the Carnegie Corporation for substantial grants made the University specifically in support of the cooperative project of the Office and

the League of which this study is one result ; and to the Milbank Memorial Fund for special assistance on this project and for the regular support it has given the Office since its inception. It is to be understood, of course, that neither foundation is author, owner, publisher, or proprietor of this report or is to be understood as approving by virtue of its grants any of the statements made or views expressed in it. In all matters of fact or interpretation the authors alone are responsible.

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## CHAPTER I

### THE APPROACH TO THE PROBLEM

PLANS for rebuilding the world after the war necessarily involve judgments about the population trends of the future. Such judgments are too often implicit, but implicit or explicit, right or wrong, they are present. The population of Europe and the Soviet Union, with which this study deals, has changed enormously in the past and will continue to do so in the future. These changes will profoundly affect the social, economic, and political life of the area, and of the world. In fact, it is scarcely possible to think of an aspect of society that will not be demonstrably changed within the next few decades by demographic forces, the broad outlines of which are already visible. For example, changes in the size and composition of the population will be important determinants of such widely divergent matters as trends in social stratification, the function of the family, the status of women, systems of land tenure, and the structure of labor organization. They will be no less important in the difficult economic problems of agrarian reform, the fluctuating levels of economic activity, the market for capital goods, credit, international trade, and the care of the aged and other dependent groups. They will be of critical importance in the problems of establishing a just and durable peace in a world whose changing economic and military manpower exerts shifting pressures on the maintenance of fixed political relationships. In each of these fields, future developments will be determined by a variety of factors, among which, in many instances, the demographic will not be the most important. However, in all of the fields coming events will be significantly influenced by changes in the size and composition of population. A full appreciation of the impact of such changes requires as much information as careful analysis and difficult circumstances make possible.

#### *The Problem*

The difficulties of predicting the nature of future trends in population are both obvious and formidable. At best, accurate prediction of population is possible only when events are moving in orderly sequence, undisturbed by sudden catastrophic developments. Un-

fortunately, we live in no such placid world. No one knows how many million soldiers and civilians have lost their lives in the war. Even less can be said about losses still to come. Nor is this all. The distribution of the population of Europe and the U.S.S.R. has been greatly altered by the economic necessities of the war, the flights from invading armies, the forced transfers of whole peoples, and the conscription of foreign labor. At the time of writing perhaps one-quarter of the German labor force comes from outside the national boundaries. It is virtually impossible to discover the magnitude of all these changes, and still less possible to know what their net effect will be on the size and distribution of the population in the years after the war. At present it is possible to study the effects of the war only in general terms and to suggest the directions of their influence, withholding final judgment until events have run their course and the results are known.

In spite of the magnitude of the war's effects, careful study of the prospects for population change is important, for the processes of birth and non-violent death continue during and after wars. These processes, though less dramatic than those of war, have in the past brought changes of even greater magnitude to the size and composition of Europe's population. They have moved somewhat irregularly, but gradually and persistently, through past upheavals and are likely to do so throughout the present catastrophe. It is these ordinary vital processes that determine the basic size and structure of the population on which the effects of war are sharply superimposed.

Few social trends in the modern period have been as universal and persistent as the decline of mortality and fertility. Coming as a result of agricultural, industrial, and technical evolution, the declines were established first in mortality, and only after a considerable interval in fertility. The result of this lagging transition from high to low vital rates has been a wave of population growth, moving across Europe with the current of modernization. This wave of growth left the nations at the end of the interwar period in widely different stages, and with widely different potentialities for future growth.

By the early 'thirties, fertility had declined so far that in most of the nations of Northwestern Europe it was no longer adequate for the permanent maintenance of a stationary population. True,

almost everywhere there were more births than deaths. However, this continued natural increase was misleading as to the likelihood of future growth. In many countries, the excess of births existed only because the past course of growth had left large populations concentrated in the reproductive ages, and relatively small ones in the older ages of high mortality. In populations thus constituted, births are relatively numerous and deaths few even if families are small and the risks of death high. Only the passage of time is required for such a situation to develop into one unfavorable to growth. The experience of France is a case in point. In the late 'thirties she had more deaths than births. On the surface her position appeared unique; it was so only in that she led the trend. Her parental stocks of the 'thirties had been depleted by the low fertility of the years back to 1890. In England, during the 'thirties, fertility was lower than in France, but births exceeded deaths because the decline in the birth rate had come at a later date so that she still had relatively large populations in the childbearing ages.

An accepted device for measuring the long-run implications of the current vital position is the net reproduction rate. This rate indicates how rapidly the population would ultimately grow if the risks of death and the fertility of each age group remained unchanged and there were no migration.<sup>1</sup> If the rate is 1.50, it means that current fertility and mortality would ultimately yield a 50 per cent increase per generation of 28 to 30 years; if it is 1.00, they would ultimately yield a stationary population; if it is 0.50, the population would ultimately be cut in half every generation. Figure 1 shows these rates for the nations of Europe and the U.S.S.R. as of about 1930. The differences are striking. Ireland and the Netherlands are the only countries of Northwestern Europe in which the fertility of the period was sufficient to yield continuous growth at the existing rates of mortality. In France, Belgium, and Czechoslovakia fertility was from 5 to 10 per cent below the level required for the permanent maintenance of a stationary population. In England and Wales, Norway, Switzerland, and Latvia it was 10 to 20 per cent below the replacement level, and in Sweden, Estonia, Germany, and Austria it was from 23 to

<sup>1</sup> On another view of the matter, the net reproduction rate is the ratio of successive female generations that would arise from the current age schedules of fertility and mortality.



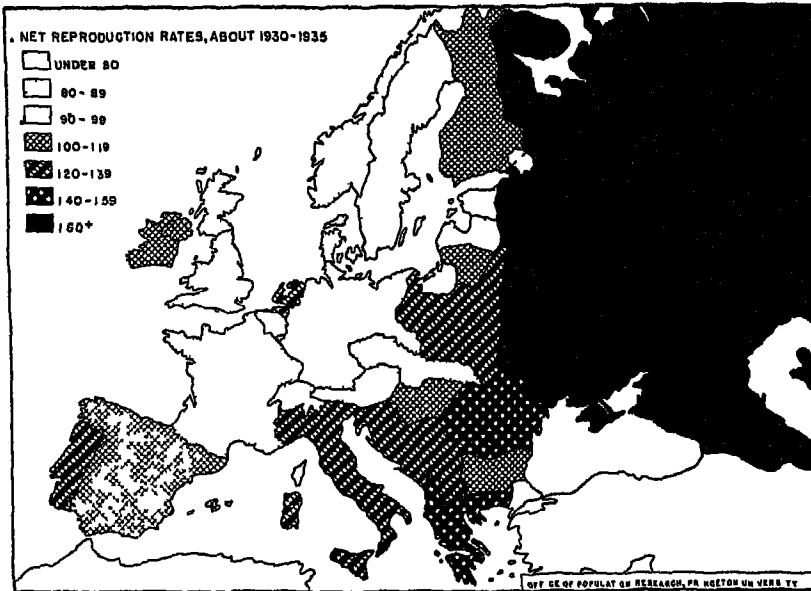


Figure 1. Net reproduction rates by country, about 1930-1935 (Rates estimated where necessary. Largest deviations from 1930 are: Greece, 1927-1929; Ireland, 1935-1937, N. Ireland, 1926-1931; and the U.S.S.R., 1926.)

34 per cent below that level. Nor could the declines of this last group be forestalled by further declines in the death rate. Fertility had fallen to such an extent that it would not permanently maintain a stationary population even if there were no deaths from birth to the end of the childbearing period. Yet in all of these countries existing favorable age distributions were yielding more births than deaths.

In Southern and Eastern Europe and the U.S.S.R., the situation was quite different. Although rapid declines in mortality had been matched or exceeded by those in fertility, the net reproduction rates remained high. Spain, Italy, and Portugal had rates of 1.16, 1.22, and 1.33, respectively. In Eastern Europe rates ranged from 1.10 to 1.48. In the U.S.S.R. the net reproduction rate was over 1.60, that is, one that if maintained would result in an increase of more than 60 per cent per generation.

The map of net reproduction rates shows that even if the mortality and fertility rates of the early 'thirties remained unchanged, there would be great changes in the size and distribution of the

population. Even without the war, Northwestern and Central Europe could have avoided declining populations only by a rise in fertility or by immigration. In Southern and Eastern Europe and the U.S.S.R., on the other hand, the war losses are falling on populations still in the growth stage, that is, on populations whose recuperative capacity remains large. Whatever the war's results, it is clear that the underlying demographic situation, the patterns of peace-time mortality and fertility, and the basic age structures will profoundly influence the course of population growth in the decades to come.

The purpose of this monograph is to examine the implications of these underlying processes and structures for the population of Europe and the U.S.S.R. in the postwar decades. From one point of view, such a study does not involve the prediction of future events, but only a statement of conclusions flowing from certain assumptions. This principle underlies all scientific analysis. The results tell us what will happen under certain conditions, but only under those conditions. They have broad predictive value only to the extent that the assumptions governing major determinants of the variable are valid. Owing to the complexity of factors affecting population change, population projections have predictive validity only as regards the general direction and magnitude of changes in large geographic areas. Neither this study, nor any other, can legitimately purport to predict the actual size and age composition of the population in a small area at any future date. Detailed projections, such as those of the present report, should be thought of as models illustrating the operation of general principles, rather than as precise forecasts. Their practical usefulness lies in the fact that they permit the segregation of those factors that are avowedly unpredictable from those that are either inevitable or broadly predictable in terms of reasonable inference. Such models afford the framework within which the basic problems of population change may be conceptualized.

### *Assumptions*

The prospects for future population change should be studied with the assistance of a more pertinent device than the net reproduction rate. This rate merely tells us what would happen, under the assumed conditions, after a sufficient lapse of time to remove

all idiosyncrasies from the age distribution. But our interest is in the next few decades. The net reproduction rate tells us what would happen if mortality and fertility remained unchanged. They will not; change will continue. Hence, assumptions drawn from past experience must be made concerning the future course of fertility and mortality, and the results must be incorporated in computations showing the size and age-sex structure of the population at reasonably close intervals. The process of obtaining such materials may be thought of as projecting the past into the future; hence the results are called population projections. As predictions of actual future events, such projections will be no more valid than their underlying assumptions, however useful they may be as analytical devices illustrating the dynamics of population change.

The projections of the present study show the population, not as it will be, but as it would be under two major assumptions. The first and more important is that the trends of the vital rates up to 1970 will represent orderly developments of those in the interwar period. Obviously, the war has already brought sharp departures from this assumed situation. The demographic effects of the war have been ignored in the projections because of the impossibility of giving quantitative expression to the losses of a conflict still in progress. The procedure is further justified on the ground that changes brought about by the war are not likely to alter the fundamental demographic positions of the major regions studied. However, in Chapter III the influence of the war is examined as closely as circumstances permit, and throughout the analysis attention is called to the general nature of modifications to be expected from it. It also seems likely that social, economic, and political changes following the war will disturb the process of population growth somewhat. They are certain to bring at least year-to-year variations, and may, as the analysis will repeatedly indicate, introduce new elements. However, in the past the underlying trends of vital rates have shown considerable stability. Therefore, for present purposes, the most practical assumption is that the new world will grow out of the old one in a somewhat orderly fashion.

The second major assumption is that no migration takes place over the 1937 national borders of Europe between the base censuses and 1970. The assumption has been false thus far, and undoubt-

edly will be invalid for the years remaining until 1970. It is introduced because of the impossibility of making any realistic estimate concerning future migrations, which will depend on, among other things, postwar boundaries and political arrangements. However, the assumption has the virtue of permitting the projections to reflect the natural sources of future growth. The boundaries of 1937 are used as a matter of statistical convenience, but the populations of these areas are studied without any assumptions concerning sovereignty.

Projections based on the above assumptions may be thought of as showing the populations that might have been expected in the nations of Europe from an uninterrupted development of the trends of the interwar period without international migration. They are, therefore, illustrations of the underlying and orderly processes of population change. They can be converted into realistic predictions only when it becomes possible to superimpose the effects of the war and of postwar migrations, and when the nature of population policies becomes apparent. However, as illustrations of the underlying processes they impose limits on future developments from which the broad outlines of prospective change begin to emerge.

### *Procedures<sup>1</sup>*

The general principle on which population projections are constructed is simple enough. It is only necessary to advance the population reported at the last census appropriately in age, subtracting estimated deaths and adding estimated births. The operation is usually carried forward five years at a time, each new result serving as a starting point for the repetition of the process. When, as here, migration is ruled out by assumption, the validity of the results turns on the accuracy of the basic census data and on the validity of the estimates of fertility and mortality. The methodological problem is to incorporate the information given by both past experience and sensible reasoning concerning the trends to be expected in fertility and mortality on the assumptions laid down. To permit regional analysis, the projections must be logically comparable from country to country. Therefore, the procedures must be systematic so that, once established, they can be

<sup>1</sup> For a more detailed discussion of technical problems, see Appendix I.

applied with as few exceptions and with as little subjective judgment as possible. They must also be sufficiently flexible to permit their application to populations in the widely different stages of demographic development found in Europe and the U.S.S.R.

*Mortality.* The record of past changes in mortality was examined on the basis of trends in life-table death rates from which the experience of war years was omitted.<sup>1</sup> The tables used were those of each European country having a series covering twenty-five or more years and those of Australia and New Zealand.<sup>2</sup> Therefore, the values used may be thought of as recording the course of peace-time developments. Study of the rates for each five-year age-sex group of these series leads to two generalizations having predictive significance:

1. In past European experience covered by the life tables, when death rates were high they were usually declining rapidly; when they were low they were declining slowly. In other words, the downward slope of the death rate was closely and positively correlated with the height of the rate.

2. In past European experience, the relation of the height of mortality for a given age-sex group to the downward slope of the rate was much the same at the various periods studied. In other words, the height-slope relation was substantially independent of time.

Taken together, these generalizations mean that mortality rates of any given height tended to have a characteristic downward slope, which was much the same in all countries and at all times. The finding is somewhat surprising. One might suppose that the accumulation of sanitary and medical knowledge would have resulted in a more rapid decline in mortality from a given height in 1930 than, say, in 1890. Certainly it should have been technically possible. In fact, however, there is no evidence of an increase in the rapidity of decline; the slopes approximated each other. There were, of course, individual exceptions, and there was considerable scatter around the average. However, the general relationships are

<sup>1</sup> Life-table death rates ( ${}_nq_x$ ) give for each sex the probability of dying between age  $x$  and  $x + n$ , as found from the actual experience of the years on which the table is based.

<sup>2</sup> Australia and New Zealand were included to bolster the experience relating to low mortality. Their death rates are among the world's lowest, their populations are of European origin, and their statistics are highly reliable.

rather definite. They are obviously useful for projections. Height-slope relations that have held substantially unimpaired during the past half-century of rapidly changing mortality should serve in projecting recent trends thirty years forward on the present assumptions.

In view of these considerations, life-table death rates were used to derive curves that describe the average course through which mortality has moved from high to low in European experience since 1870.<sup>1</sup> The curves were extended beyond the lowest observed experience by smooth curves having the same initial slopes as those at the last observed heights, but becoming progressively smaller as time goes on. Since the slopes were small for low mortality rates, the extended lines flatten out rapidly. Figure 2 shows the basic mortality curves for selected age groups of females. Mortality

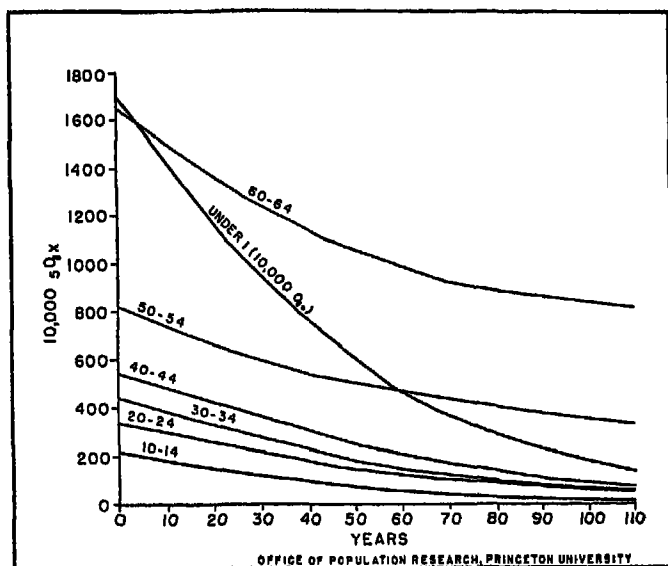


Figure 2. Basic curves for the projection of mortality for females of selected age groups.

rates for each age-sex group of each country were then projected by locating the values of the most recent life tables on the appropriate curve and reading forward on the curve at five-year inter-

<sup>1</sup> See Appendix I, pp. 188 ff.

vals. The results give the materials for constructing life tables for each country at five-year intervals from 1940 to 1970.

It should be noted that this procedure does not involve the assumption that the future peace-time mortality of any country will be an orderly development of its own past experience. Instead, it carries the assumption that the mortality of a country will move from its last observed prewar position in the same way that Europe has, on the average, moved from that position in the past. Since the past trends in the mortality of any particular country contain variations that can be viewed as "accidental," the procedure seems wise. Undoubtedly, nations will depart from the average in the future as they have done in the past, but, before the fact, there is no reason to suppose that they will depart in the same direction. The procedure has two great advantages. It provides for an absolutely systematic projection of the experience of all countries, and it permits projections to be constructed for any country, in the

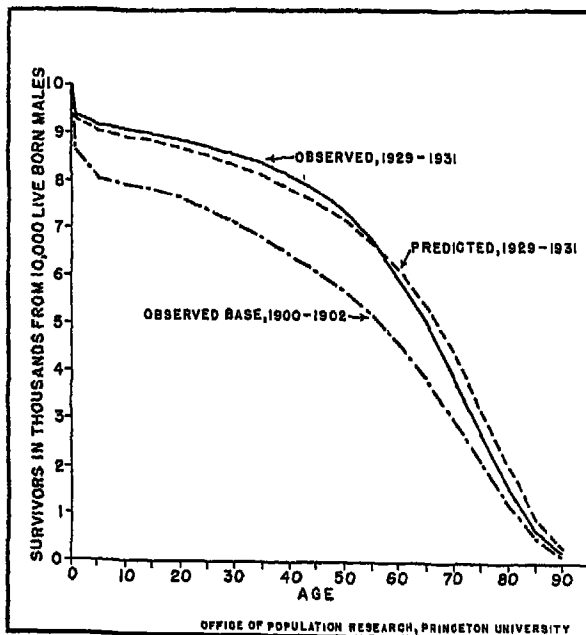


Figure 8. Number of survivors observed in 1929-1931, and number "predicted" by projecting mortality from the life table of 1900-1902, for white males of the original registration states of the United States.

European range of experience, for which a life table exists or can be constructed.

Some suggestion of the general appropriateness of the procedure used in projecting peace-time mortality thirty years forward can be obtained by seeing how well it would have worked in the past for a period of twenty to thirty years spanning World War I. Figure 3 presents this test in terms of the number of survivors to each age of 100,000 live-born white males in the United States, showing the values for the base life table for 1900-1902, the values predicted from it by means of projecting mortality to 1930, and the official life table for 1929-1931. In spite of large changes during this period of twenty-nine years, the predicted values fall relatively close to those observed. However, it is apparent that the improvement in mortality projected on the basis of European

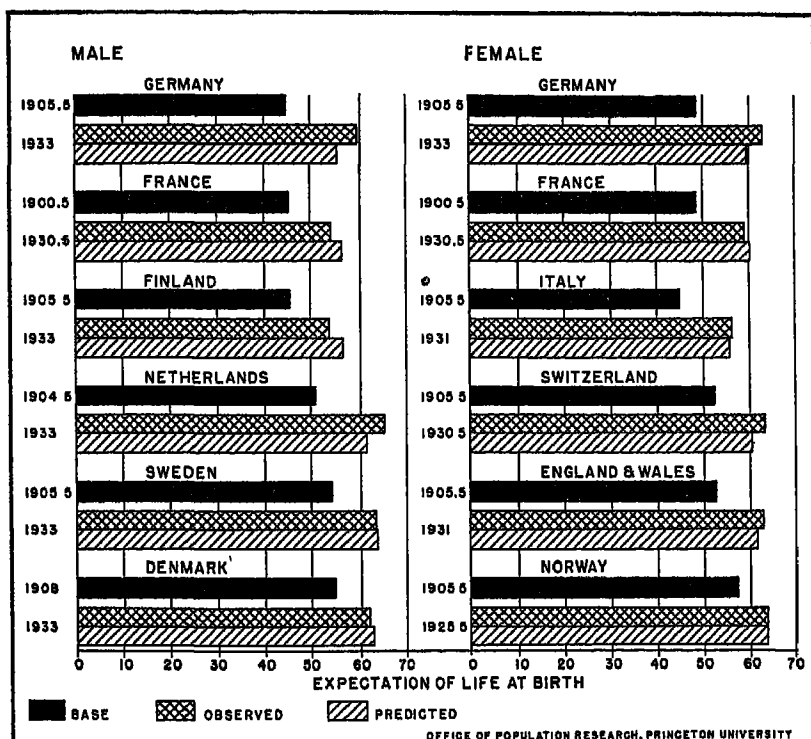


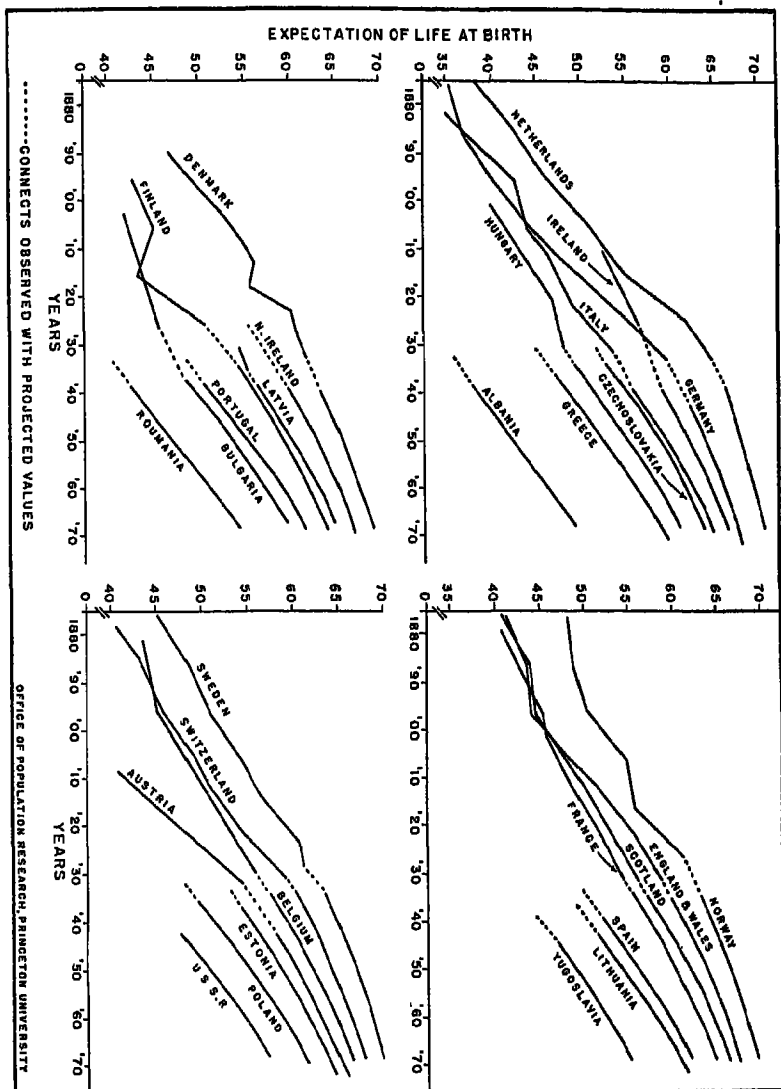
Figure 4. Illustrations of the "prediction" of recent life expectancies at birth from past mortality tables by the method used to project mortality, for selected countries.



experience was less rapid than in the United States in the young ages, and much more rapid in the old ages. Figure 4 presents a comparison of observed life expectancies at birth with those predicted from the values of base tables for a period twenty to thirty years earlier in selected European countries. The test is not a rigorous one since the projection system was based in part on the same tables and since the expectation of life at birth is an average figure that conceals compensating errors. However, it does show in summary form how the experience of individual countries deviates from the average. Of the twelve cases tested, the predicted values deviated from the observed ones by one per cent or less in 3 cases, by one to two per cent in 3 cases, by three to six per cent in 5 cases, and by eight per cent in one case. Equal accuracy in predicting peace-time life expectancy twenty to thirty years hence would be at once highly satisfactory and somewhat unlikely. On the other hand, it can be said that a system showing such general reliability of prediction over a twenty to thirty year period spanning the first World War is a reasonably appropriate one on which to predict future peace-time survival rates.

Figure 5 shows the projected expectation of life at birth for males of each country, together with observed past values wherever they are available. The countries are classified in four groups to avoid overlapping lines. On each line the last observed value and first projected one are connected by dots. Three general points are worth noting: (1) the projected lines are more regular than the observed ones, illustrating the fact that actual experience is less orderly than that projected on the basis of average European experience; (2) the projections appear to be a sensible extension of the country's own past experience; and (3) the projected expectancies increase more rapidly where they are low than where they are high. The values projected for males in 1970 range from 55 years in Roumania to 71 years in the Netherlands.<sup>1</sup> A similar chart for females would have essentially the same characteristics. Values projected for 1970 range from 56 for Roumania and Yugoslavia to 72 for the Netherlands and Norway. These extreme values represent increases over those of 1940 of 11 to 12 years for each sex in Roumania and 4 to 5 years in the Netherlands and

<sup>1</sup> The lower value for Albania is neglected because it is based on inadequate information. See discussion of basic data below and in Appendix I, pp. 196 *ff.*



*Figure 5.* Trends of observed and projected life expectancies at birth for males, by country, 1870-1970. (Dots connect the last observed and first projected values.)

Norway. In general, the mortality projections appear suitable for use in computing the future survivors of the population on present assumptions.

*Fertility.* The projection of fertility presents somewhat different, and essentially more difficult, problems than that of mortality. The record of past experience is more fragmentary and the data are less reliable. Moreover, the trends have been somewhat less regular. Throughout Europe there was a universal and substantially unbroken decline in fertility from before the beginning of this century up to 1933. Between that date and the outbreak of the war substantial increases occurred in many parts of Western Europe. The whole nature of the projections turns on the interpretation of this rise. If it represents the beginning of a reversal in the long-established downward trend, the projections must take it into account. The ultimate proof awaits future events, but the burden of evidence lies against this view. Both the very low rates in the most severe years of depression and the subsequent rise give every indication of being responses to immediate changes in economic conditions rather than changes in the underlying pattern of family size. Declines in fertility followed quickly on sharp declines in marriages as the depression deepened, and were especially marked among first and second children. As the revival came, marriages rose sharply, followed by rises in first and second births. Fourth and higher order births have scarcely participated in the rise. The entire process is closely correlated with the movement of employment, especially where fertility is largely under voluntary control. The sequence of events, therefore, suggests that postponement of marriage and parenthood during the depression sent birth rates to abnormally low levels; and that the release of this accumulated backlog by improved employment accounts for the subsequent rises. Conditions of boom employment, together with the preferential military status given people with dependent children in some countries, have carried the process to a stage analogous to "inventory accumulation." Couples have been getting married and having children who, in more normal times, would have delayed for some years. This process has obvious limits, and, in the absence of changing attitudes toward family size, suggests the imminence of sharp declines, rather than of further rises in the birth rate. The whole movement probably will have a rather small

effect on the total size of populations. It will result in sending waves through the age structure of the population corresponding to past levels of economic and military activity.

The rise in the German birth rate is in a somewhat different class. There, under the active drive of the National Socialist regime, the birth rate rose from the very low figure of 14.7 in 1933 to 20 in 1940. Propaganda, marriage loans, special favors to parents, the suppression of abortion, and possibly the new sense of national destiny characteristic of the earlier years account for part of the rise. This rise, incidentally, occurred in some measure even in the higher orders of births. However, it has been shown that about three-fifths of the increase in German births between 1933 and 1939 would have been expected on the basis of the rise in employment, if the relation between employment and births found in Europe outside Germany applied to Germany.<sup>1</sup> Therefore, it is highly unlikely that gains can be maintained without a drastic strengthening of the governmental program.

The conclusion that the underlying downward trend of the birth rate has not yet been reversed is no proof that it will not be reversed. However, such an upturn appears quite unlikely in the absence of general social reorientation. Many lines of evidence support this conclusion. The patterns of fertility by economic class, size of community, and geographic region all suggest a process of transition from high to low fertility that has not run its course. The trend toward low birth rates has spread from "upper classes" down, from large to small communities and rural areas, and broadly from Northwestern Europe southward and eastward. Birth rates in the interwar period were, in general, falling least where they were lowest, and most where they were highest, so that differences were closing. However, except under the influence of strong governmental action, there is no class or group, so far as the writers know, in which a real upward trend in family size can be demonstrated. On the other hand, even in countries where birth rates are very low, there are substantial groups whose birth rates, although dropping fast, remain quite high. These broad patterns suggest continued declines until the transition becomes more nearly complete.

<sup>1</sup> Kirk, Dudley. The relation of employment levels to births in Germany. *Milbank Memorial Fund Quarterly* 20(2):126-188. April, 1942.

The probability of a continued decline, inferred from the trend of fertility differentials, is also supported by all available evidence concerning the causal factors at work. (The emergence of the small family pattern is in major part due to the voluntary control of fertility, principally through contraception. The driving force stimulating such control lies in social-economic incentives.) Modern urban society places a high value on the individual as opposed to the family or other groups, sets great store by the advancement of the individual in health, education, social and economic status, and makes childrearing an expensive undertaking. The simple fact is that it places heavy economic and social penalties on the parents of large families. There are strong inducements to parents to have only a few children to whom they can give "every advantage." These inducements have been strong enough to bring the fertility of upper and middle classes of the urban population to very low levels. The hopes and aspirations of these classes are sweeping rapidly into the lower economic groups and rural populations. With them is carried the small family ideal. As long as this situation obtains, fertility can be expected to have a downward trend. So far as can be seen at present, that trend will continue until there is a drastic change of motivations. Such a change may come through a reduction of the economic burden of parenthood by governmental action, or by a weakening of the individualistic tendencies of the modern era. However, in the absence of such changes, which lie outside present assumptions, the general course of fertility can be expected to be downward.

Such a downward trend in fertility must be given specific expression in a reasonable manner for the projections. The procedure must be systematic and still fit the divergent rate structures of Europe. A treatment analogous to that given mortality was not possible because the records of the past were too incomplete and because, at given heights, fertility rates<sup>1</sup> have tended to decline more rapidly in recent than in earlier experience. The statistical base, therefore, had to be confined to the interwar period.

The base periods from which projections of fertility rates were started were the last prewar ones for which data were available

<sup>1</sup> Fertility rates refer to age-specific fertility rates, i.e., the average annual number of births to mothers of specified five-year age groups per 1,000 females of corresponding age groups living at the middle of the period. The whole array of age-specific fertility rates is referred to as the age schedule of fertility.

in the summer of 1941. Wherever possible they were three-year periods, which in almost all cases came after 1935. The choice was dictated by two considerations: (1) the desire to use recorded births as long as possible; and (2) the desire that the projections should be conservative in the sense that they tend to minimize the differences in the regions, which stand out so clearly in the results. In Eastern and Southern Europe rates continued to fall rapidly after 1935. Therefore, the base period for this region of potentially rapid growth was not particularly high. On the other hand, in Northwestern Europe the decline was substantially checked and in a number of cases reversed, so that the base period favors growth in this area of incipient decline.<sup>1</sup>

Given the base rates, the problem is to select a mathematical form on which to project them. Initially it must fit the observed characteristics of the data and, throughout, retain positive values. Since in the interwar period, high fertility rates declined relatively rapidly, and low ones relatively slowly, it is reasonable to expect the rates to decline progressively less as they become smaller. Indeed, to be on the conservative side the form used for projecting should provide for progressively smaller proportionate declines as time goes on. It should also be one that minimizes the crossing of projected rates for various countries. Doubtless, some countries with relatively high rates now will have relatively low ones in the future and vice versa, but, before the fact, it is impossible to know which ones. Any number of functional forms would fit the above requirements, but the results would not differ seriously for present purposes. Rectangular hyperbolas were selected largely for their simplicity of computation.

The values of hyperbolas are determined if their initial heights and slopes are known. Height, as has been noted, was obtained from observed rates of the base periods taken largely after 1935. However, it would not be wise to base the initial slopes on the experience of such a short period. Instead, the average experience of the 'twenties and 'thirties was used to measure the underlying

<sup>1</sup> This situation is particularly marked in Germany and Austria, whose base rates reflected the force of the governmental pro-natalist policy. It is implicitly assumed in the projections that fertility will decline in orderly fashion from those abnormally high positions. With a German defeat, a precipitous decline is more likely. The projections, therefore, show more births for these countries than seem appropriate under the present conditions.

relation of height and slope. Rates for years early and late in the 'twenties were averaged to stand for 1925; those early and late in the 'thirties, to stand for 1935. The differences between the averages, expressed in annual terms, were taken as the measure of "underlying slope" as of 1930. These averages for 1925 and 1935 were, in turn, averaged to stand for "fundamental height" as of 1930. Such heights and slopes were computed for each age group in each country for which the required data were available. Lines were fitted to this material, yielding for each age group an average relation of the height to the slope of fertility as of 1930, but expressing the underlying experience of the two interwar decades. These lines showed that the declines were much larger for high than for low rates in all age groups.<sup>1</sup>

Heights for the base period following 1935, and the height-slope relations taken as of 1930, fully determine the values of the hyperbola, and the projected course of fertility.<sup>2</sup> It will be noted that the fertility of each age group in each country is projected from its base period in accordance with average European height-slope relationships, rather than by an extension of its own past trends. This fact means that any two countries having, for any age group, identical rates in the same base period would have identical projected rates throughout, just as they would in the case of the mortality projections.

Figure 6 shows the projected fertility rates for the U.S.S.R. and Sweden as examples of the results in countries with very high and very low fertility. The rapid declines projected for the U.S.S.R. are in striking contrast to those for Sweden. The case of the Soviet Union deserves special comment. Since the base rates were

<sup>1</sup> In the case of women under age 20 there were increases in fertility in some countries as a result of declining ages at marriage. Since the rates in any case are so low as to have little importance, the current ones for this group were simply incorporated in the projections without change.

<sup>2</sup> The formula for the projection of fertility is given below, and the matter is more explicitly developed in Appendix I, pp. 192 *ff.*  $F_0$  and  $F_t$  are the age-specific fertility rates at 1930, and at  $t$  years after 1930, respectively; and  $r_0$  is the proportion of decline in 1930 computed from the regression of height on slope for Europe in the interwar period.  $F_0$  is obtained by going back on the curve to 1930 from the base period subsequent to 1935. The behavior of  $r$  may be seen from the relations shown:

$$F_t = \frac{F_0}{r_0 t + 1}, \quad \frac{r_t}{r_0} = \frac{F_t}{F_0}, \quad r_t = \frac{r_0}{r_0 t + 1}.$$

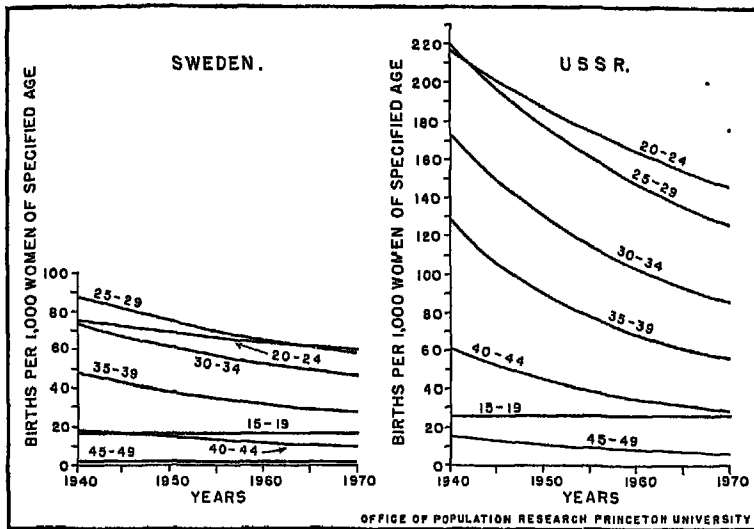


Figure 6. Fertility rates projected for Sweden and the U.S.S.R., 1910-1970.

among the highest observed, the declines projected for fertility are among the most rapid. Rapid declines are to be expected on several grounds, among others, the fact that past trends have been quite similar to those of other areas. On the other hand, in the interwar period there was evidence of the beginnings of governmental policies that would greatly reduce the usual economic incentives for small families. Even if such policies are fully developed, it is likely that fertility will continue to decline for a time, but also possible that it will stabilize before it reaches the low levels of Western Europe. No allowance for this possibility has been made because it would involve treating the U.S.S.R. as a special case, whereas similar policies may also emerge elsewhere.

Figure 7 summarizes the projected fertility for each country and, where it is possible, recent actual experience. The measure used is the gross reproduction rate, which is the ratio of successive female generations that would result from the age-specific fertility rates if there were no deaths from birth to the end of the child-bearing period.<sup>1</sup> It is a summary index of fertility. The conver-

<sup>1</sup> Arithmetically, the gross reproduction rate is the sum of the age-specific fertility rates multiplied by the ratio of female to total births. For this purpose rates for five-year groups are multiplied by five, and rates are those per capita rather than per 1,000. On another view, the rate shows the ratio of the female



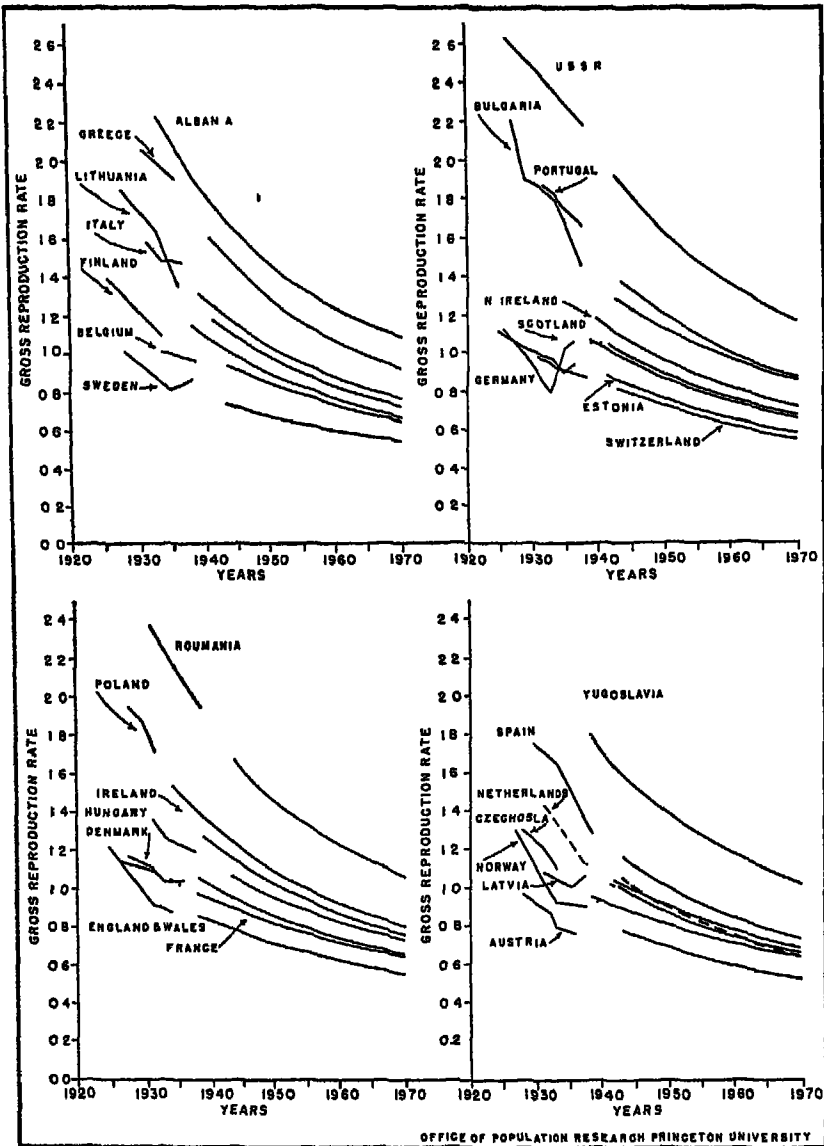


Figure 7. Trends of observed and projected gross reproduction rates, by country, 1920-1970. (Dots connect the last observed and first projected values)

gence of the rates between 1940 and 1970 is marked. At the former year, they range from 2.06 in the U.S.S.R. to 0.79 for Sweden, a difference of 1.27. By 1970 the range is from 1.16 to 0.54, a difference of 0.62 or about half as much. In the interval the rate for the U.S.S.R. declines by nearly 0.90 or in excess of 44 per cent, while that for Sweden declines by 0.25 or about 32 per cent. This faster drop of high than of low rates is in agreement with the observed trend of the interwar decades. Under the continued regime of the 1940 fertility schedule each generation of daughters in Sweden would be about 20 per cent smaller than the generation of their mothers, even if there were no deaths from birth to the end of the childbearing period. With the rates projected for 1970 each generation of daughters would be about 45 per cent smaller than that of their mothers. The latter rate is about 0.10 lower than that in Swedish cities in 1930-1931. The fertility schedule of the U.S.S.R. for 1940 would yield a generation of daughters twice as large as that of their mothers if there were no deaths. That for 1970 would yield one only 20 per cent larger. The gross reproduction rate projected for the U.S.S.R. in 1970 is only a little lower than that for England and Wales in 1921-1925.

It is also apparent from Figure 7 that the fertility projections are rather conservative extensions of past trends. Wherever they were known, the actual declines of the interwar years were usually much more rapid than those projected. In general, the trends projected seem to be reasonable extensions of the past for the purpose in hand. In a number of countries the rise of the rates in the late 'thirties is clearly apparent. In Germany the result of the pronatalist program is marked, as is the fact that the projections indicate more births for that country than may occur if, as previously suggested, the actual course of fertility should be a sudden drop to earlier levels instead of the orderly trend here assumed.

populations in two successive generations (about 28-30 years) that would eventually develop in a closed population having the specified schedule of fertility, but no deaths from birth to age 50. If such a rate is 2.00 it means that at the observed schedule of fertility the population would eventually double every generation if there were no deaths prior to age 50; if the rate is 1.00 it would remain stationary; if the rate is 0.50 the population would decrease by 50 per cent per generation. On this interpretation, mortality above age 50 would have to remain fixed. Its height would influence the size of the population but not its rate of growth. The gross reproduction rate is analogous to the net reproduction rate except that the latter takes account of mortality.

Of course, the projected fertility trends are more orderly than the actual ones of the past. They are necessarily so because each country's position is extended by generalizing from the average characteristics of many countries. The regularity is forced by the procedure. The most certain conclusion of all is that the actual year-to-year courses of fertility in the future will not be those projected. Political changes, economic fluctuations, indeed changes in the weather will introduce at least minor shifts in the future as they have in the past. Sweeping social change may alter the entire trend, as it, and re-employment, did in Germany. The projections do not show what will happen. They show what could be expected to be the general trend on the assumption that the future represents an orderly development of the past. As such they seem satisfactory if not too closely interpreted. To the extent that they are in error the population under age 30 by 1970 would be affected.

### *The Population Projections*

The projection of the population of a country is a purely mechanical process, given an initial age-sex distribution, projected age schedules of fertility and mortality, and an assumed absence of international migration. Each five-year age-sex group of the last available census is advanced five years by applying appropriate survival ratios from the projected life tables. This leaves only the population under age five to be obtained. For that, births in the five years subsequent to the base census are computed by applying the projected age-specific fertility rates to the corresponding age groups of women in the population and allocating to the sexes in accordance with the country's recent sex ratio at birth. (Reported births are used whenever they are available for five-year periods following the census.) Application of appropriate survival ratios to these births yields the projected population under age five, five years after the date of the base census. The whole process is then repeated successively, using the last projection as a new base from which to move forward five years. Since the computations run at five-year intervals from the date of the base census, the results are finally interpolated to yield projections by age and sex as of January 1, 1940, 1945, etc., to January 1, 1970.

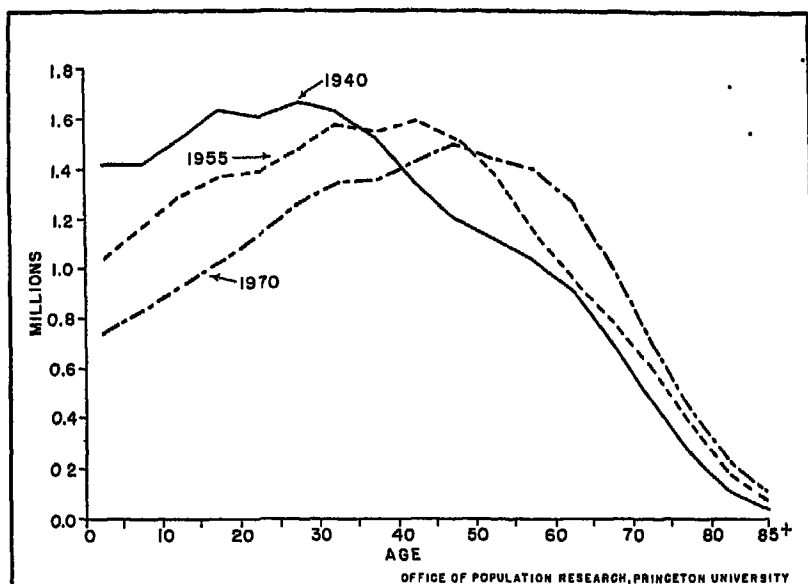


Figure 8. The male population of England and Wales by age, projected for 1940, 1955, and 1970.

Figure 8 illustrates the results for the male population of England and Wales by age as projected to 1940, 1955, and 1970.<sup>1</sup> The most striking fact shown is the rapid aging projected for the population. In considerable part this aging is independent of the future course of fertility. People 15 or more years of age in 1955 and those 30 or more in 1970 were already living in 1940. The rapid swelling of the older ages is, therefore, the result of events already past and could be prevented only by mass emigration or catastrophe far exceeding anything in past experience. The increase in the older ages is sharply accented by a somewhat startling decrease projected for the child populations. In 1955 boys aged 0-4 are only two-thirds as numerous as men aged 40-44, who form the largest group. By 1970, the group 0-4 is less than half that 45-49. The trends for females are virtually the same.

Projected declines of the child populations of such dimensions, resting as they do on judgments of future events, must, at first

<sup>1</sup> The 1940 projection is close to the actual population. It is somewhat smaller because the projections neglect immigration between 1931 and 1940 and because the fertility projections were based on 1936-1938 and did not allow for a rise in the number of births in 1939 following the prosperous year of 1938.

glance, challenge credulity. Since those shown here for England and Wales differ from those of most countries of Northern and Western Europe only in being sharper, they must be examined with some care. First of all, it must be recalled now, and continuously throughout this report, that the projections assume an extension of past trends. In fact it seems likely that any general public awareness of the ultimate implications of such trends will stimulate social action to reverse them. To the extent that there is such successful action, the child populations here projected are not applicable. However, the likelihood of pro-natalist policies should not lead us to an easy disregard of the situation portrayed. The dwindling child populations come in part from an assumed future decline in fertility but, as was noted above, the decline assumed for the future was much less sharp than that which has occurred in the past two decades, and much less sharp for a country like England and Wales, where fertility was already low, than for countries with higher fertility. Even more important, the decline projected for the child populations is by no means the exclusive result of assumptions concerning the future trend of fertility. In very considerable part it is the result of what has already happened to the cohorts of potential parents. The parents of the year 1960 are now living; their numbers can be significantly increased only by heavy immigration. The group aged 20-29 in 1970 could be substantially increased beyond the size projected only if the extraordinary fertility of the years 1940-1942 continued throughout the war and immediate postwar periods—a somewhat unlikely development.<sup>1</sup> The contingents of potential parents will be substantially those projected at least until 1960.

The shrinking numbers of potential parents may be seen in Figure 8. In 1940 males aged 20-34 form the largest group, and the same is true of the females. This is the most important group in childbearing. Between 1940 and 1955 women aged 20-34 decrease from 5.0 million to 4.4. Between 1955 and 1970 they fall from 4.4 to 3.6 million. The latter figure is somewhat speculative,

<sup>1</sup> The experience of the war years has not yet been carefully analyzed, but two factors are probably important: (1) for the first time in years there are more men than women in the population, and (2) incomes are high, while the rationing system limits many usual outlets for purchasing power but favors those directed toward children. It seems unlikely that these changes in the biological and economic situations will be maintained in the postwar years.

but probably not grossly in error. The decline projected for 1940-1970 is 28 per cent. That decline in parental stocks makes the projected drop of the child population far from impossible. It imposes a formidable obstacle to any program designed to check the decline of child populations.

This impact of the past on the future, the heavy inertia of population change, is well illustrated by the requirements of a stationary population in England and Wales. Suppose that the demographic costs of the war are negligible and that by the middle of 1946 (15 years after the base census) the population of England and Wales stands, as projected, at 41.1 million. Suppose, also, that the risk of death in each age group declines between 1946 and 1970 as projected. Suppose, finally, that through governmental action, or by whatever means, the number of births exactly equals the number of deaths in each subsequent five-year period, so that in the absence of migration, the population remains continuously at 41.1 million. What would be the course of the vital rates, and what the age distribution by 1970?

Figure 9 gives the answers to the above questions. In panel A the inevitable aging of the population is strikingly shown. By 1970, a population that remained stationary from 1946 on would have about as many children aged 0-4 as there were in 1940, fewer people in each age from 5 to 44, and more people at each age over 45 than there were in 1940. The reduction between 1940 and 1970 of people in the childbearing ages is exceptionally large. Obviously, such aging tends to depress the birth rate and raise the death rate. The effect of aging on the death rate is shown in panel C. The risk of death at each age is identical for the declining and stationary population, and its downward trend is summarized by the life-table death rate.<sup>1</sup> In spite of these declining risks, the ratio of deaths to the total population (i.e., the crude death rate) rises as the people shift to the older ages. The rise is a little less in the stationary population than in the declining one, because the former has more people in the healthy ages of childhood. To maintain a stationary population, the crude birth rate must equal the crude death rate; hence, the birth rate must also rise. But, as panel D shows, to obtain a rising ratio of births to population from a

<sup>1</sup> The rate is the inverse of the expectation of life at birth, or the death rate that would occur in a population having the age distribution of the life table.

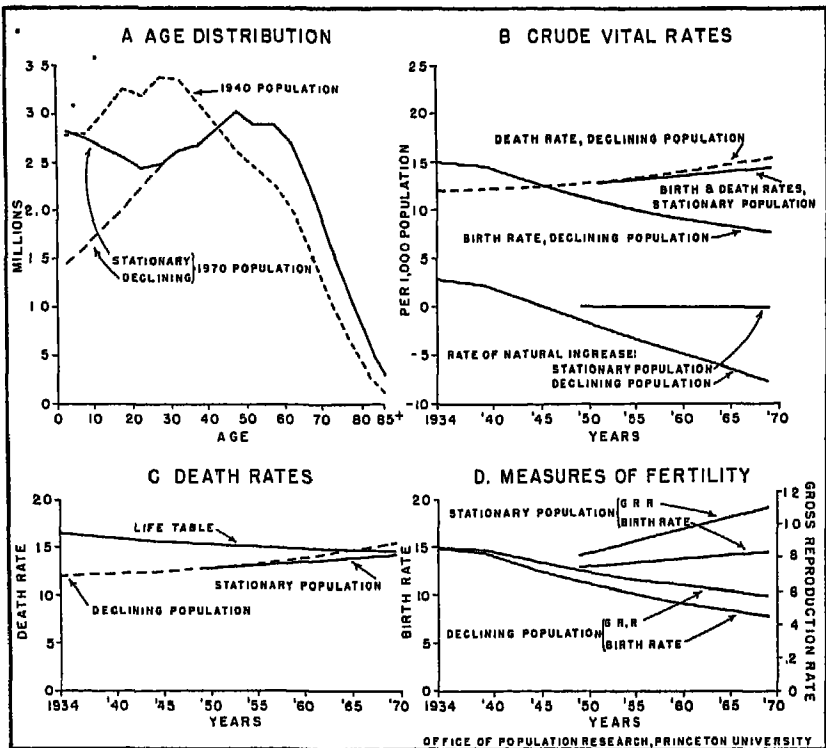


Figure 9. Age distributions in 1970, and vital rates, 1934-1969, for projections of the population of England and Wales, on the basis of: (1) a declining population, obtained by the standard procedure of this report, and (2) a population that remains stationary from 1946.5 to 1970.

population with rapidly shrinking numbers in the childbearing period requires an even more rapid increase in fertility; hence, the sharp upward trend required of the gross reproduction rate. It moves from a projected 0.79 in the five-year period centered on 1944 to 1.11 in that centered on 1969. Putting it another way, this means that the fertility of 1944 is such that, if there were no deaths from birth to the end of the childbearing period, each 100 live-born girls would eventually bear a total of 79 girls or 162 boys and girls. By 1969, the latter figure must rise to 228, an increase of 41 per cent, if the population is to remain stationary under present assumptions. The net result of these trends is shown in panel B, which is self-explanatory. It is clear that to maintain a stationary population the downward trend in fertility would not

only have to be checked, it would have to be reversed, and to continue upward for many years to come. The gap between the rates projected on the assumption of continuation of past trends and those required to maintain a stationary population will not be closed easily.

The situation of England and Wales is by no means unique. That country is only well along the course of demographic transition being followed by nearly all industrial countries of the West. For that reason it well exemplifies the fact that the seeds of demographic change are slow in coming to fruition. The eventual consequences of declining fertility were concealed for years by an age distribution which falling fertility and mortality made progressively more favorable to growth. Many of the countries of Eastern Europe are in this growth phase. However, the fruits of the past eventually mature. Large contingents of parents move on to swell future deaths of the aged. Reduced numbers of children move on to become parents. Deaths rise, births fall, and growth gives place to a decrease of surprising magnitude—a decrease that inevitably becomes progressively difficult to check. The projections of this report may be thought of as models illustrating this process under certain definite assumptions.

The validity of the projections depends not only on the appropriateness of the method to the purpose but also on the adequacy and accuracy of the basic data. These vary greatly from country to country. In general, the data were both adequate and accurate in Northwestern and Central Europe, Italy, and Poland. For Spain, Portugal, the Balkans, Lithuania, and the U.S.S.R. they were both incomplete and inaccurate in varying degrees. Where data were not available, the best estimates possible under the circumstances were made. Where they were obviously inaccurate, corrections were introduced. For these reasons new life tables were constructed for Spain, Portugal, Greece, Roumania, Yugoslavia, Bulgaria, and the U.S.S.R. The Polish life table was used for Lithuania, and mortality rates in Albania were assumed to be somewhat higher than those in Yugoslavia. Age-specific fertility rates had to be obtained by indirect, but satisfactory, procedures for many countries from reports of the total births unclassified by age of mother. In Yugoslavia, Roumania, and Greece correction factors of 10 per cent or less were used to take account of the



under-registration of births. Albanian fertility was assumed to be five per cent higher than that of Yugoslavia. The mortality and fertility schedules and the initial age distribution for the U.S.S.R. had to be based on estimates from fragmentary and fugitive official data.<sup>1</sup> These estimates, though certainly inaccurate in detail, are believed to be generally reliable.

Something of the magnitude of the difference made by introducing corrections for obviously defective data can be seen from the cases of two of the most difficult countries, Yugoslavia and Roumania. In both cases there was clear evidence that both births and deaths were incompletely reported, the latter being more incomplete than the former. Projections based on such data without correction differ most from those of this report for the year 1970. For that date, the uncorrected total for Yugoslavia is 1.4 million or 7 per cent larger than the corrected one, the excess appearing in each age but becoming larger with advancing age. In the case of Roumania, the uncorrected projection in 1970 is .5 million or 2 per cent less than the corrected one, there being fewer people in each group under 40 and more in each one after 40 than in the corrected projection. Undoubtedly, the corrected projections differ from those that would be obtained from exact basic data, though the direction of the difference is not clear. In general, it may be said that the projections for Eastern Europe as a whole are more reliable than those for any individual country of that region. However, even for individual countries inaccuracies remaining in the basic data seem too small to invalidate the projections for any use to which they can be reasonably put.

The projections of this series agree rather well with those made by other students under assumptions somewhat comparable. Generally, those of this series fall near the center of the available array, as may be seen in Appendix II, where the matter is more fully discussed. This rough agreement does not suggest that the projections have high predictive validity, since the results are implicit in the assumptions. However, it is to a certain extent a validation of the procedures followed under the assumptions. Students mak-

<sup>1</sup> The difficult task of providing the basic data for the projection of the U.S.S.R. population was undertaken by Frank Lorimer of American University and the Office of Population Research. The special procedures involved are described in some detail by him in a forthcoming monograph of this series on the *Population of the Soviet Union: History and Prospects*.

ing projections for single, or similar, countries were free to choose the specific trends that seemed most appropriate to the particular population group with which they dealt. Such freedom was not possible here, since a major purpose of the task was to permit comparisons of the results of underlying trends from country to country and region to region. For this purpose, uniform and completely systematic procedures were essential. Rough agreement with the results of other workers is, therefore, encouraging because it shows that such rigidly systematic methods were sufficiently flexible to be appropriate to the widely divergent types of demographic situation existing in the U.S.S.R. and the regions of Europe.

Admittedly the results to be presented in the following chapters suggest sweeping, even dramatic, changes in the future. The facts will be no less dramatic, although they will undoubtedly be somewhat different. The writers believe that the projections are valid working models of the results that may be expected from a continuation of recent vital trends. As such they are very broadly predictive. They show either the sorts of change that will occur, or the power of the stimulus toward organized social action for their reversal, and the magnitude of the task. They bear testimony to the fact that past losses are not easily regained, nor new accomplishments quick to bear fruit. They illustrate the intimate relation of social-economic change to the processes of demographic development. Conversely, and more importantly, they show a slow process of population change too strong to permit the permanent maintenance of rigidly fixed economic and political arrangements.

The following study deals first with the results as they relate to total populations, then with the demographic effects of war and their relation to the projections. The next several chapters analyze the changes in component age groups of the population, presenting the material in terms of three functional groups: males in the potential labor and military forces, females in their reproductive and economic roles, and the dependent groups of childhood and old age. The final chapter discusses some of the more general implications of the results and considers briefly problems involved in the alteration of the projected trends.

## CHAPTER II

### THE PATTERN OF POPULATION CHANGE IN EUROPE

#### *The Continent*

More people are alive in Europe today than existed in the entire world at any one time prior to 1650. Europe's 540 million in 1939 were the descendants of about 100 million living in Europe in the middle of the seventeenth century. Since 1850 the population has doubled, since 1800 it has almost tripled, and in the last three centuries it has increased more than fivefold.<sup>1</sup>

This tremendous expansion of population in the modern era accelerated with the passage of time. It began faltering in the seventeenth century, gained strength in the eighteenth, and reached its greatest tempo in the late nineteenth and early twentieth centuries. Today it is rapidly fading. The implications of present trends, as carried out in the population projections of this study, point to the cessation of European population growth and to decline within a generation in Europe outside the U.S.S.R.

The actual population of Europe (excluding the U.S.S.R.) from 1900 to 1939 and the projected from 1940 to 1970 are shown in Table 1.<sup>2</sup>

Before World War I the population was growing about 10 per cent per decade. The ravages of that war nearly wiped out the

<sup>1</sup> Population estimates for Europe as a whole are subject to a considerable margin of error, especially for the earlier dates. The 1939 population was estimated from data in the *Statistical Year-Book of the League of Nations, 1940/41*, and the European population of the regions of Soviet Russia according to the 1939 census of that country. Aside from the 1939 figures the statements of this paragraph are based on estimates given in Carr-Saunders, A. M. *World Population*. Oxford, Clarendon Press, 1936, p. 42.

<sup>2</sup> In discussing population trends in Europe it is desirable to exclude the European section of the U.S.S.R., partly because the U.S.S.R. is better discussed as a unit, partly because its population trends are very different from those in the rest of Europe, and, finally, because ascertaining the facts of population trends of European Russia presents problems not encountered in the rest of Europe. The Soviet Union does not maintain any administrative distinction between Europe and Asia, and, in fact, does not even recognize such a distinction consistently in her statistics. In recent years, therefore, it has been difficult to define the area, not to mention the population, of all Europe. The boundaries of administrative regions in the Ural area have been frequently changed and the present organization bears little or no relation to the provincial boundaries on the basis of which the distinction between Europe and Asia was made in Czarist days.

TABLE 1  
Population of Europe, 1900-1970<sup>1</sup>

Year	Population (in millions)	Change in Decade	
		Amount (in millions)	Per Cent
Actual			
1900	310		
1910	339	29	9.4
1920	345	6	1.8
1930	376	31	9.0
1939	399	23 <sup>2</sup>	6.1 <sup>2</sup>
Projected			
1940	399		
1950	415	16	4.0
1960	421	6	1.4
1970	417	-4	-1.0

<sup>1</sup> Excluding the interwar territory of European Russia, European Turkey, and certain minor areas (see note 1 to Table 2, p. 56). The actual populations from 1900 through 1939 were compiled, where possible, from the official statistics of the countries concerned. Great care was taken to obtain comparable areas and populations. In particular, boundary changes incident to the first World War necessitated independent estimates of the 1900 and 1910 populations of the Baltic countries and of Southeastern Europe.

<sup>2</sup> Nine-year interval. The figures for 1900 through 1939 refer to the population at the end of the year, the projections to the population at the beginning of the year.

natural increase of the decade 1910 to 1920, so that the population rose only about 2 per cent. After the war the rapid growth of the prewar era was temporarily resumed under the impetus of births postponed from the war period and because of a great reduction in emigration from Europe. Between 1900 and 1910 Europe had lost over 7 million persons by emigration. From 1920 to 1930 the net loss amounted to fewer than 3 million. The rate of growth, therefore, would have been appreciably lower had there been the prewar volume of overseas emigration.

Between 1930 and 1940 Europe continued to grow in population but at a reduced pace. That the growth continued as high as it did, about 7 per cent, is attributable to abnormal age distributions favoring larger numbers of births and fewer deaths. As appears in Figure 1, page 18, in more than half of the countries of Europe during the 'thirties, the population was not reproducing at a rate that would permanently maintain existing numbers. Also, in comparison with earlier decades, the 'thirties were unique in the

absence of emigration from Europe. Consequently, for the first time the actual growth and the natural increase for a decade were practically the same.

Even without any further decline in fertility, the natural increase of most European countries will go down in the next decade or two, owing to the aging of the population, which results in more deaths and fewer births. With an orderly continuation of recent fertility and mortality trends in the future, Europe would have reached a maximum population of 421 million about 1960, and from then on would have declined at an accelerating pace.

The projections indicate a relatively constant population of about 420 million for Europe, to be reached about 1955 and to continue at least to 1970. Under the assumptions made, the European population will vary less than two per cent from 420 million in this fifteen-year period. Ever since reasonably accurate population figures have been available, no such stability of population has been experienced in Europe.

That Europe should reach an end to rapid population growth was a foregone conclusion. No continent can continue indefinitely to increase at the rate that Europe was growing in the modern era. At the height of the Roman Empire, Europe's population has been estimated at 30 million.<sup>1</sup> Had the rate of increase throughout the past 2,000 years been that of the past century, there would be 10 trillion persons alive in Europe today, a figure five thousand times that of the present population of the entire world, and predicating an average density of population throughout Europe somewhat greater than that of Central London today. Europe is already the most densely populated of the continents. Excluding European Russia, it is almost as thickly settled as India. The industrial area, including England, the Low Countries, Northern France, and Western Germany, has the greatest concentration of population in the world. Indefinite continuation of population growth would not only be disastrous; it would be impossible.

The fact that Europe seems destined to stop growing within the next twenty years will necessarily change her relations with other continents. It has been estimated that in 1650 about a fifth of the world's population was European and that this proportion re-

<sup>1</sup> See article on "Bevölkerungswesen" in the *Handwörterbuch der Staatswissenschaften*. Jena, Gustav Fischer, Fourth edition, 1924. Vol. 2, pp. 666-670.

mained nearly constant until 1750. From that date Europe's share rose steadily until it reached a fourth in this century. If people of European descent in the new worlds are included, Europeans today are one-third of the world's population, which is almost twice as great a proportion as in 1650.<sup>1</sup>

Europe (excluding European Russia) has already ceased to grow relatively to the rest of the world. In fact, it has been losing ground since 1910. At that time the European population amounted to about 340 million out of an estimated 1,685 million, or about 20 per cent. Largely as a result of the war in 1914-1918, Europe's share of the world's population declined in the decade 1910-1920. Then as a cumulative product of declining growth in Europe and rapid increase elsewhere, Europe's part of the total fell to about 18 per cent in 1940.<sup>2</sup> Thus, well before the outbreak of World War II, it was apparent that Europe had a dwindling proportion of the world's population. Only North America and Australasia have displayed a similar tendency toward population stabilization and decline and these are, of course, predominantly European in origin.

On the other hand, large non-European populations of Asia, Africa, and South America have reached a demographic stage comparable to that of Europe at the beginning of the period of her most rapid growth. Death rates are declining through the application of modern medicine and the control of famine, but birth rates continue high. Only a war of unheard of destruction could wipe out all the gains of modern sanitation and transportation. At the same time, birth rates in many sections of the globe are not likely to fall speedily enough to prevent a very rapid population growth for at least a generation.

Europe consequently faces the prospect of making an adjustment from a psychology of expansion to one consonant with a situation in which the European population will be relatively smaller than it has been in the past. On the other hand, Europe's influence has never rested on sheer force of numbers; indeed, the

<sup>1</sup> Carr-Saunders. *Op. cit.*, p. 42.

<sup>2</sup> Figures for the total population of the world in 1910 and 1920 are from: Institut International de statistique. *Aperçu de la démographie des divers pays du monde, 1929-1936*. The Hague, 1939, p. 7. Those for 1930 and 1939 are from: League of Nations. *Statistical Year-Book, 1931/32*, p. 28, and *1940/41*, p. 18. All estimates of the total population of the world are necessarily highly approximate.

population of Europe has never been more than a fourth of the world's total.

### *Regions and Countries*

Had the prewar course of population development continued, the population of Europe (again excluding Russia) would have commenced to fall about 1960. Europe, however, is far from being a homogeneous entity, and population changes in Europe as a whole are the blending of widely divergent changes in its component regions and nations. Many stages of economic and cultural development are represented by the countries of Europe. In some the Industrial Revolution is now over a century and a half old. By 1850, for instance, England was already predominantly urban, industrial, and commercial, as opposed to rural and agricultural. By contrast, in Eastern Europe there are countries even now just emerging from self-sufficient peasant economies and just beginning to experience the domination of urban influences, of money economy, and of industrial society. The stages of economic and cultural development represented by the various nations are paralleled by comparable stages of demographic evolution.<sup>1</sup> In every country where it has been experienced, the Industrial Revolution has been associated with rapid population growth. Even in Japan, with its completely different historical background, the Industrial Revolution was accompanied by a sudden numerical increase in a population that formerly had apparently maintained a rather remarkable stability.

Since the Industrial Revolution was first the achievement of Western Europe, rapid population expansion first occurred in that area and continued throughout the nineteenth century. In general, this growth was achieved by reduction of the death rate rather than through a rise in births. The improvement of agricultural techniques, the opening up of food resources in the New World, and the construction of railroads and canals eliminated for the time being the ultimate check on all population growth, namely, the limitation of the food supply. Rising standards of living brought improved conditions of daily life in housing, clothing, and diet, though some of these gains were undoubtedly lost owing to the severe working conditions of early industry. Finally, the great

<sup>1</sup> See Figure 1, p. 18.

advances in public health and sanitation increasingly spared the population from the ravages of epidemics and contagious diseases of many kinds.

On the basis of available data it seems probable that birth and death rates were rather constant in eighteenth century Europe, with a substantial rate of natural increase. In the nineteenth century death rates began to fall in Western countries and after 1900 followed a precipitous decline in all of Europe. Because of their head start, Western countries naturally continued to lead the trend. Scandinavia achieved a death rate of under 20 per thousand in the 1860's; England, about 1880; the Netherlands, about 1890; Italy and Austria, about 1910; most of Eastern Europe and the Balkans, in the 1920's; and, finally, Roumania and probably the Soviet Union, in the 1930's.

In contrast to death rates, birth rates revealed no clear trend before the latter half of the nineteenth century. France was the only exception. In that country birth rates have followed a steady downward course ever since 1820. In the rest of Europe the decline did not commence until after 1870. Once started, the birth rate fell more precipitously than the death rate ever had. It dropped below 30 per thousand in France about 1830; in Sweden, about 1880; in the rest of Scandinavia and England in the 1890's; in Germany, the Netherlands, Czechoslovakia, and the Baltic countries, between 1900 and 1910; in Hungary, Italy, and Spain, in the 1920's; in Poland and the Balkans, in the 1930's. Of European countries only the U.S.S.R. and possibly Albania still had birth rates above 30 per thousand in 1939.

The fall of the birth rate came later than the fall of the death rate, but eventually gained even greater momentum. Consequently, before the last war the margin of natural increase was contracting in the countries of more advanced demographic evolution. In the interwar period the process continued and spread to those countries in which the vital revolution had just begun.

The changes in decennial rates of growth since 1900 are presented in Figures 10 to 13.<sup>1</sup> In the first of these, giving the per-

<sup>1</sup> The growth rates presented in these maps were computed from a new compilation of populations at the respective dates, made primarily from the official statistics of the countries concerned. Previous compendia (e.g., the various issues of the Institut International de statistique. *Aperçu de la démographie des divers pays du monde*), though very useful for other purposes, were unsuitable for the



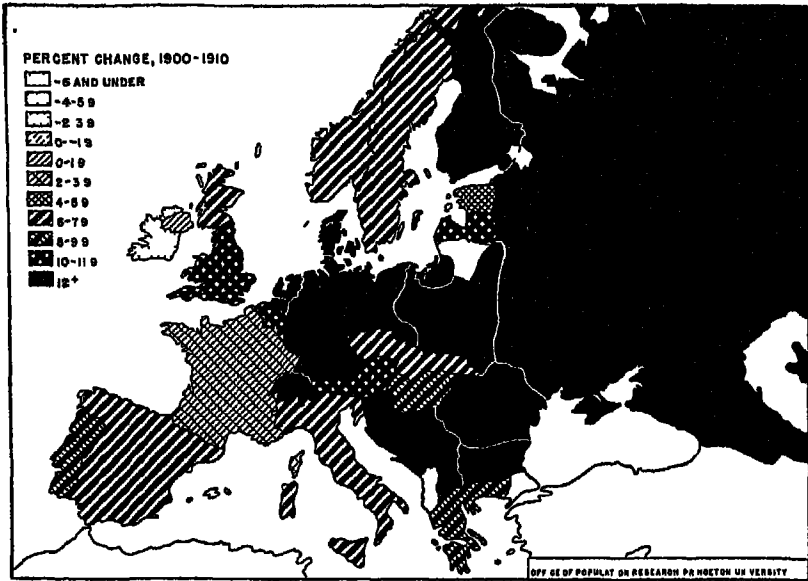


Figure 10. Per cent change in population, by country, 1900-1910. (Adjusted to interwar boundaries.)

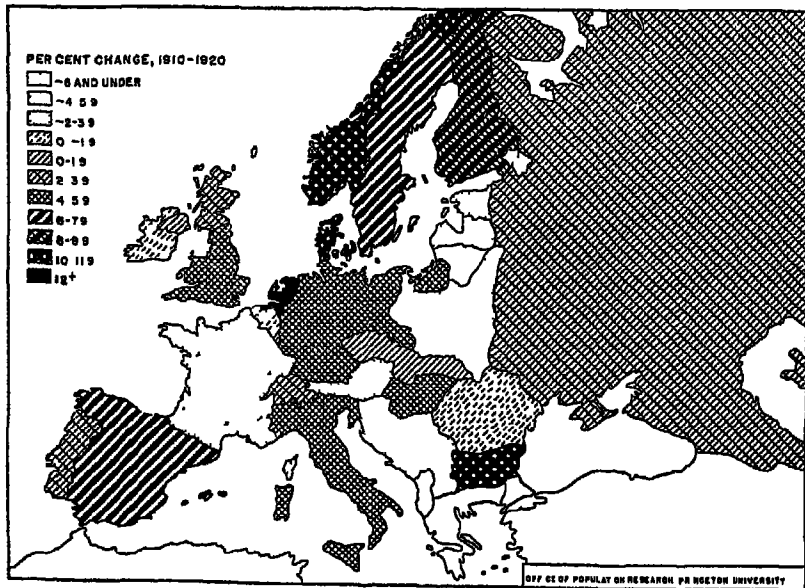


Figure 11. Per cent change in population, by country, 1910-1920. (Adjusted to interwar boundaries.)

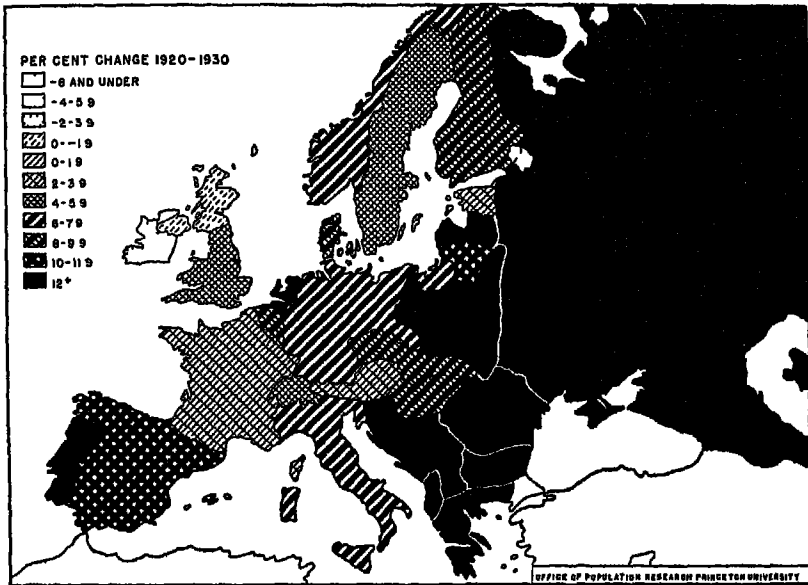


Figure 12. Per cent change in population, by country, 1920-1930.

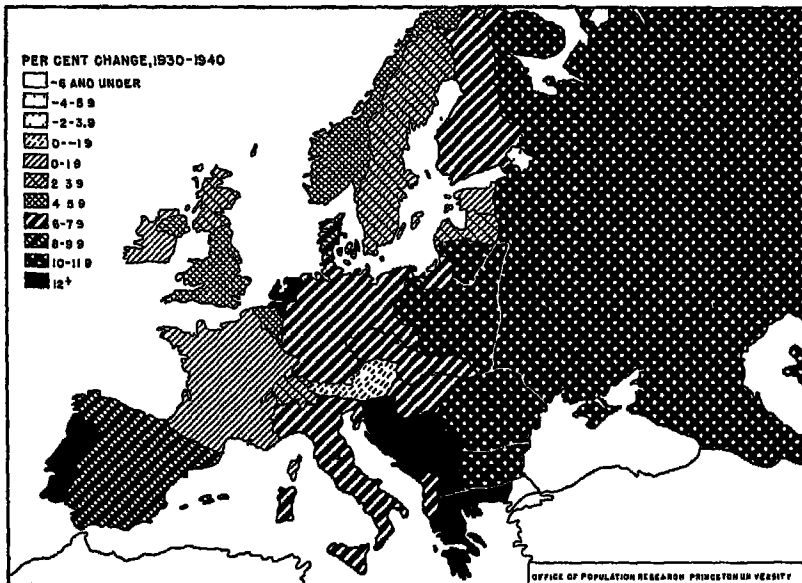


Figure 18. Per cent change in population, by country, 1930-1940.

centage change of population from 1900 to 1910, the nineteenth century pattern of growth in Europe is still in evidence. The only country showing population decline is Ireland, where natural increase failed to compensate for heavy emigration. France shows the slow growth connected with a long period of declining birth rates. Southern Europe was growing less rapidly than the East and the North, though natural increase in Sweden and Norway had already fallen considerably. Population increases in Scandinavia, in Italy, in Greece, and in certain parts of the Austro-Hungarian Empire were somewhat lower than they would have been in the absence of overseas migration.

The decade 1910-1920 was naturally much affected by the first World War. Except among neutrals population growth was much lower than in the previous decade. In some countries the war more than wiped out the natural increase of the decade and brought about net population loss. Refugee migration or the absence of normal emigration also distorted the orderly development of pre-war trends. If the records for Eastern Europe are accurate, the effect of the war was greater there than in the West. Yugoslavia, Poland, and the Baltic countries, the chief battlegrounds in the East, were especially hard hit. Bulgaria and Hungary, though otherwise severely affected by the war, had population increases arising from the inward flow of refugees from lost territories. The neutrals displayed relatively normal rates of growth, though Spain and Portugal suffered heavily in the influenza pandemic at the end of the decade. Growth in Switzerland was checked by the repatriation of foreigners during the war.

The resumption of rapid growth in the postwar decade did not occur evenly throughout Europe. In Western Europe the rate of increase was generally lower than it had been in 1900-1910, the only exceptions being France, where immigration swelled the pop-

present one, owing to the fact that no effort was made to obtain figures for all countries at the same date. Consequently the data for 1900, 1910, 1920, and 1980 only approximately represent these years in many cases and the time interval between two figures for any given country may be more or less than ten years. Considerable effort was exerted in the new compilation to secure comparability in populations, areas, and time intervals. Nevertheless, the results for Eastern Europe, especially for the periods 1900-1910 and 1910-1920, are only approximate, because of territorial changes and the inadequacy of the basic data. The rates of population change in the 'thirties, presented in Figure 18, relate to the period from December, 1929, to December, 1939, which slightly overlaps the previous decade, December, 1920, to December, 1930.

ulation, and the Netherlands. In Southern and Eastern Europe death rates had fallen without compensating declines in births and the rates of growth were higher than they had been before.

In the decade just past, the great majority of European countries grew less rapidly than during the previous decade. The exceptions are those countries, such as Ireland, Scotland, and Italy, where the cessation of emigration bolstered population increase or terminated losses. In Germany the reversal of migration trends and the Nazi pro-natalist policy checked the decline in rate of growth that otherwise certainly would have occurred. In most countries the slower growth may be charged to the decline of the birth rate, but in Russia and Spain abnormal factors contributed to this development. In the U.S.S.R. the travails of collectivization and famine in the early 'thirties are reflected in the lower rate of increase, though at 11.9 per cent, it was just below the figure necessary to place the Soviet Union in the top category of growth, mapped in solid black (Figure 13). In Spain the civil war unquestionably contributed to a lower rate of natural increase. Nevertheless, the Spanish census of 1940, if accurate, indicates a surprisingly large population growth in the decade.

The series of maps in Figures 10 to 13 illustrates both the persistence of downward trends in population growth despite temporary disturbances arising from war, and the spread of this pattern, after 1920, to Southern and Eastern Europe. Future population growth as described by the projections of this study is the logical unfolding of these trends without the disrupting influences of war and migration. The detailed projections by countries are given in Table 2 and the projected rates of population growth derived therefrom are presented in Figures 15 to 17. In these maps may be seen the orderly recession of the wave of population growth, decade by decade, indicated by the projections, and the retreat of that wave to the East.

To facilitate description of the stages of demographic evolution now reached in the various sections of Europe and to indicate the probable future course of growth in these sections in so far as it may be divined from past trends, Europe has been divided into five regions and the U.S.S.R. These regions are shown in Figure 14. They were selected on the basis of demographic characteristics and therefore do not necessarily conform to the usual concep-

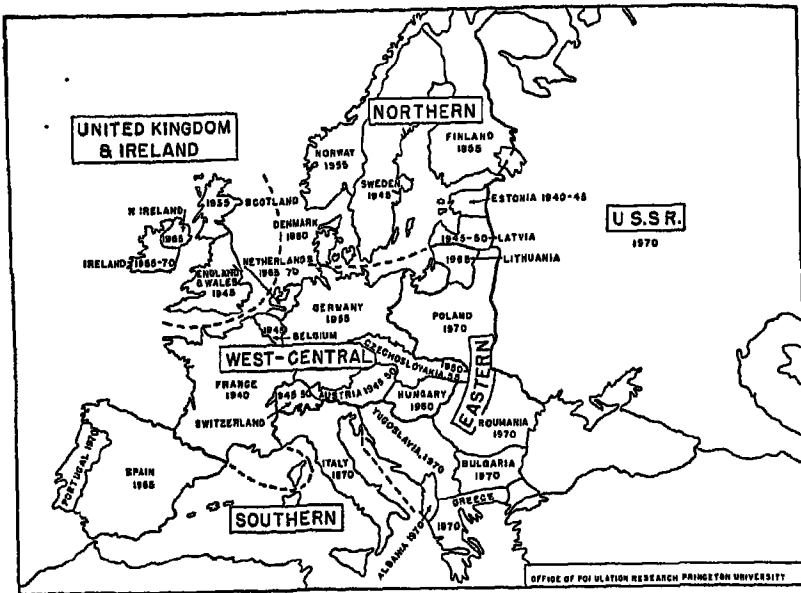


Figure 14. Regional classification of Europe and the U.S.S.R., and approximate date of maximum population projected for each country in the period 1940-1970.

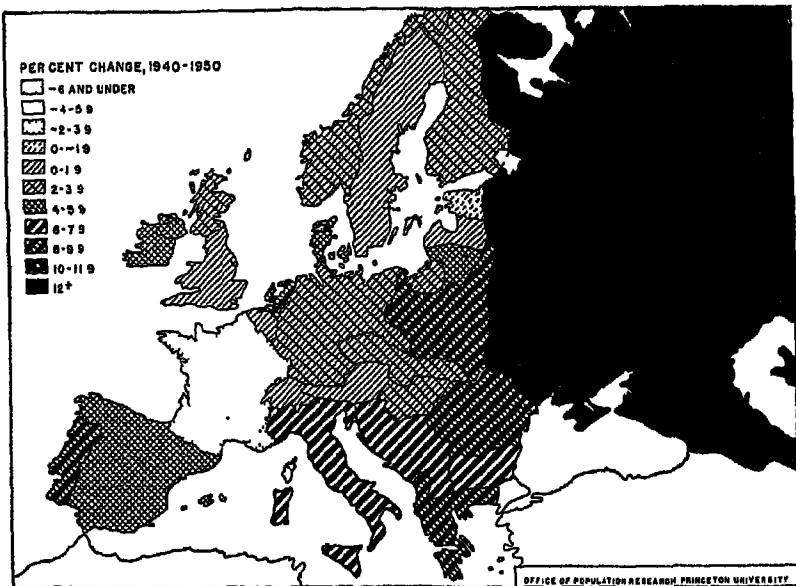


Figure 15. Per cent change in projected population, by country, 1940-1950.

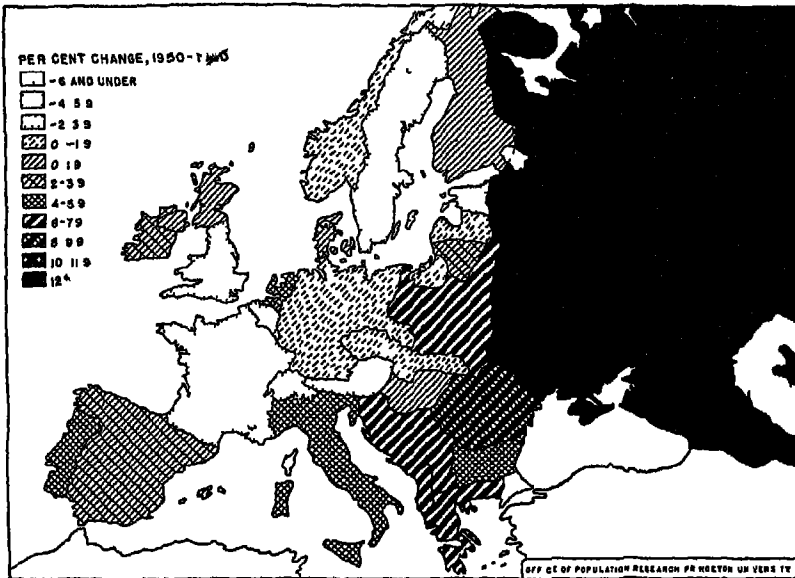


Figure 16. Per cent change in projected population, by country, 1950-1960.

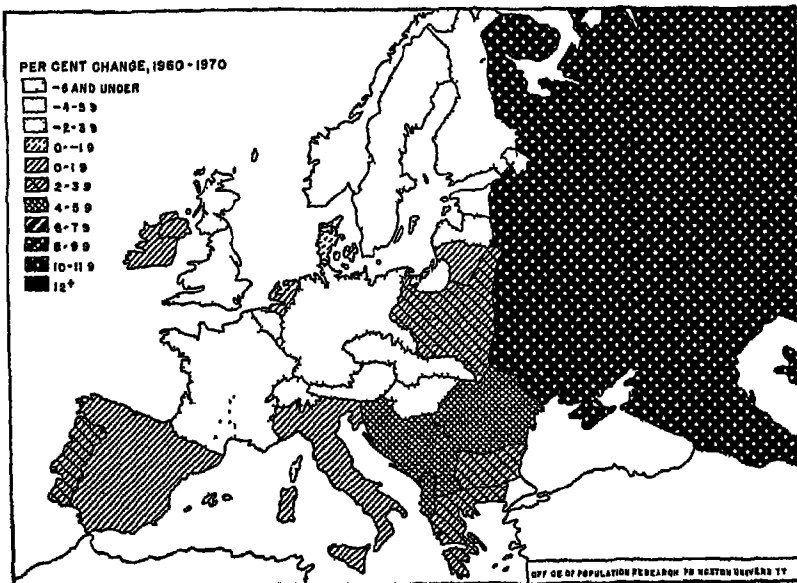


Figure 17. Per cent change in projected population, by country, 1960-1970.

**TABLE 2**  
**Population Projections for Europe and the U.S.S.R.**  
**at Five-Year Intervals, 1940-1970**  
(In thousands to three significant figures)

REGIONS AND COUNTRIES	1940	1945	1950	1955	1960	1965	1970
Europe and the U.S.S.R.	572,000	597,000	618,000	636,000	650,000	661,000	668,000
Europe (exc. the U.S.S.R.) <sup>1</sup>	399,000	408,000	415,000	419,000	421,000	421,000	417,000
Northwestern and							
Central Europe	234,000	236,000	237,000	237,000	234,000	231,000	225,000
United Kingdom and							
Ireland	50,200	50,600	50,600	50,200	49,400	48,200	46,800
England and Wales	40,900	41,100	40,900	40,400	39,600	38,400	37,100
Ireland	3,020	3,080	3,140	3,190	3,230	3,240	3,240
Northern Ireland	1,300	1,330	1,360	1,370	1,380	1,390	1,380
Scotland	5,050	5,150	5,210	5,230	5,220	5,170	5,090
West-Central Europe	168,000	165,000	166,000	166,000	165,000	162,000	159,000
Austria	6,660	6,720	6,720	6,680	6,580	6,450	6,280
Belgium	8,310	8,350	8,340	8,270	8,160	7,980	7,760
Czechoslovakia	15,300	15,500	15,600	15,600	15,500	15,200	14,900
France	41,200	40,800	40,800	39,700	39,000	38,100	36,900
Germany	69,500	71,200	72,000	72,200	71,800	71,100	69,800
Hungary	9,160	9,320	9,440	9,510	9,530	9,470	9,330
Netherlands	8,840	9,230	9,550	9,780	9,950	10,000	10,000
Switzerland	4,220	4,260	4,260	4,220	4,150	4,050	3,920
Northern Europe	20,100	20,400	20,500	20,500	20,300	20,000	19,500
Denmark	3,820	3,930	4,010	4,050	4,060	4,040	3,990
Estonia	1,180	1,130	1,120	1,100	1,070	1,040	1,000
Finland	3,850	3,950	4,000	4,020	4,010	3,980	3,920
Latvia	1,990	2,010	2,010	2,000	1,980	1,950	1,910
Norway	2,930	2,980	3,010	3,020	3,000	2,950	2,870
Sweden	6,330	6,380	6,370	6,310	6,210	6,050	5,840
Southern and Eastern							
Europe	165,000	172,000	177,000	183,000	187,000	190,000	192,000
Southern Europe	77,500	80,100	82,800	84,100	85,500	86,300	86,500
Italy	44,200	45,700	47,000	48,100	48,900	49,400	49,500
Portugal <sup>2</sup>	7,620	7,980	8,290	8,550	8,780	8,960	9,090
Spain <sup>3</sup>	25,600	26,400	27,000	27,500	27,800	28,000	27,800
Eastern Europe	87,700	91,600	95,200	98,500	101,000	104,000	105,000
Albania <sup>4</sup>	1,100	1,100	1,200	1,200	1,200	1,300	1,300
Bulgaria	6,820	6,550	6,790	7,000	7,170	7,280	7,320
Greece	7,180	7,530	7,830	8,100	8,350	8,570	8,640
Lithuania	2,460	2,530	2,580	2,630	2,660	2,670	2,660
Poland	35,200	36,700	38,100	39,400	40,400	41,000	41,400
Roumania	20,300	21,800	22,200	23,100	24,000	24,800	25,300
Yugoslavia	15,200	15,800	16,400	17,100	17,700	18,200	18,500
U.S.S.R.	174,000	189,000	203,000	216,000	228,000	240,000	251,000

<sup>1</sup> Excluding the following areas for which projections were not made: Andorra, Channel Islands, Danzig, Faroe Islands, Gibraltar, Iceland, Isle of Man, Liechtenstein, Luxemburg, Malta, Monaco, San Marino, Spitzbergen, Turkey in Europe, and the Vatican. The aggregate population of these areas in 1939 was 2.7 million.

<sup>2</sup> Includes the Azores and Madeira.

<sup>3</sup> Includes the Canary Islands.

<sup>4</sup> Two significant figures.

tions of European regions. Thus Czechoslovakia and Hungary were placed in the West-Central region of Europe, not because of any assumptions regarding the political and economic orientation of these countries, but because their age structures and reproduction rates resemble those of their neighbors to the west more than they do those of their neighbors to the south and east. For similar reasons Estonia and Latvia were placed in the Northern region with Scandinavia and Finland, despite obvious affiliations of these countries with Eastern Europe in other regards. For purposes of regional analysis the smaller regions have also been consolidated into three major divisions: (1) Northwestern and Central Europe, including the United Kingdom and Ireland, West-Central Europe, and Northern Europe; (2) Southern and Eastern Europe; and (3) the U.S.S.R.

The populations of the various regional divisions since 1900 and projected to 1970 are shown in Figure 18. Differences in regional trends naturally reflect the dominant influences among the component countries. Under the assumptions made, every country in Northwestern and Central Europe reaches its maximum population and ceases to grow prior to 1970. In contrast, almost all countries of Southern and Eastern Europe are still growing in 1970, though at greatly reduced rates of increase. The amounts and proportions of the changes projected between 1940 and 1970 are shown for each European country in Figure 19.

Obviously it is not presumed that the specific figures provided by the projections will be the actual and precise populations of the future. It will be recalled that the projections are extrapolations of the past fertility and mortality experience of Europe, disregarding the effects of war, future migration, and such social and political developments as might alter the orderly unfolding of past trends.<sup>1</sup> For statistical convenience the projections were made for the prewar countries and boundaries of Europe without any assumption that the actual future map of Europe will be that of the past. Nevertheless, the projections of this study, or estimates similarly derived, are necessary to supply the "normal" expectation of population development. Otherwise any rational estimate of future populations is impossible.

According to the projections elaborated in this study the first

<sup>1</sup> See Chapter I, pp. 20-21.



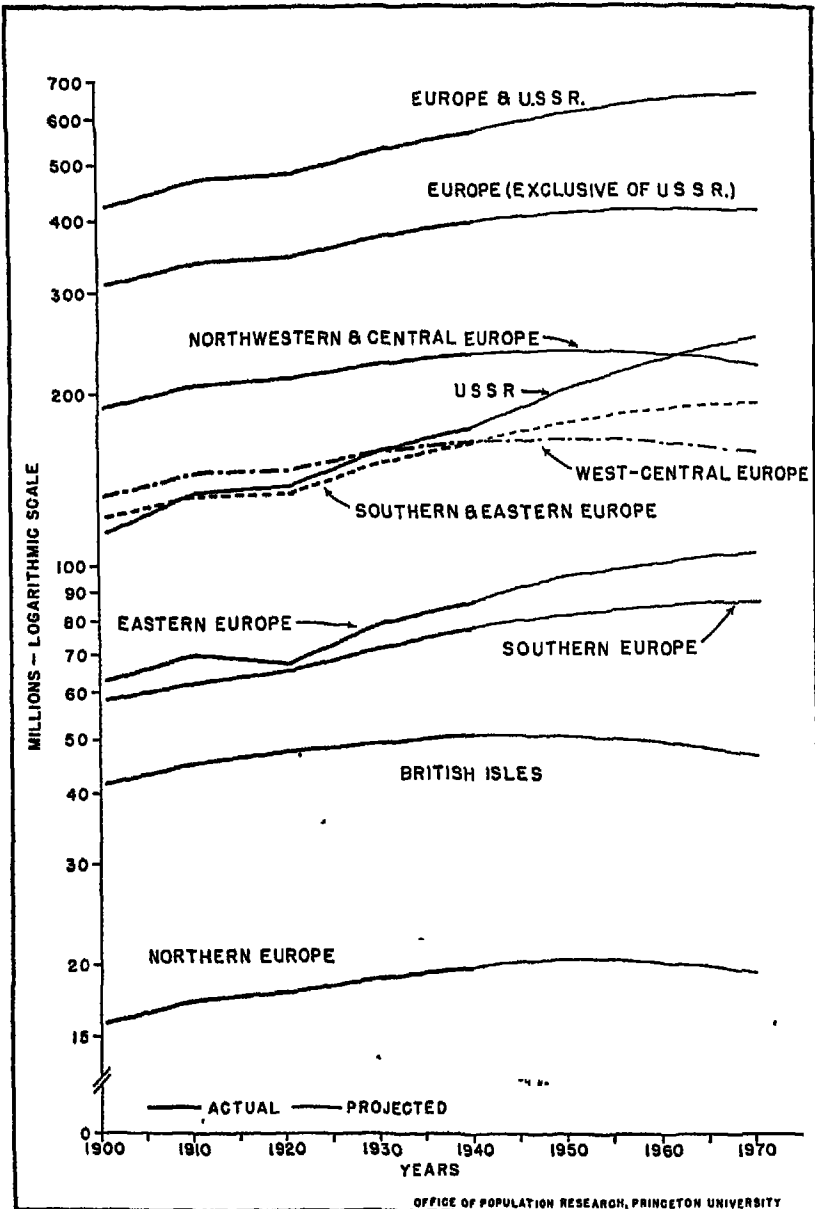


Figure 18. Population trends of demographic regions, 1900-1970.

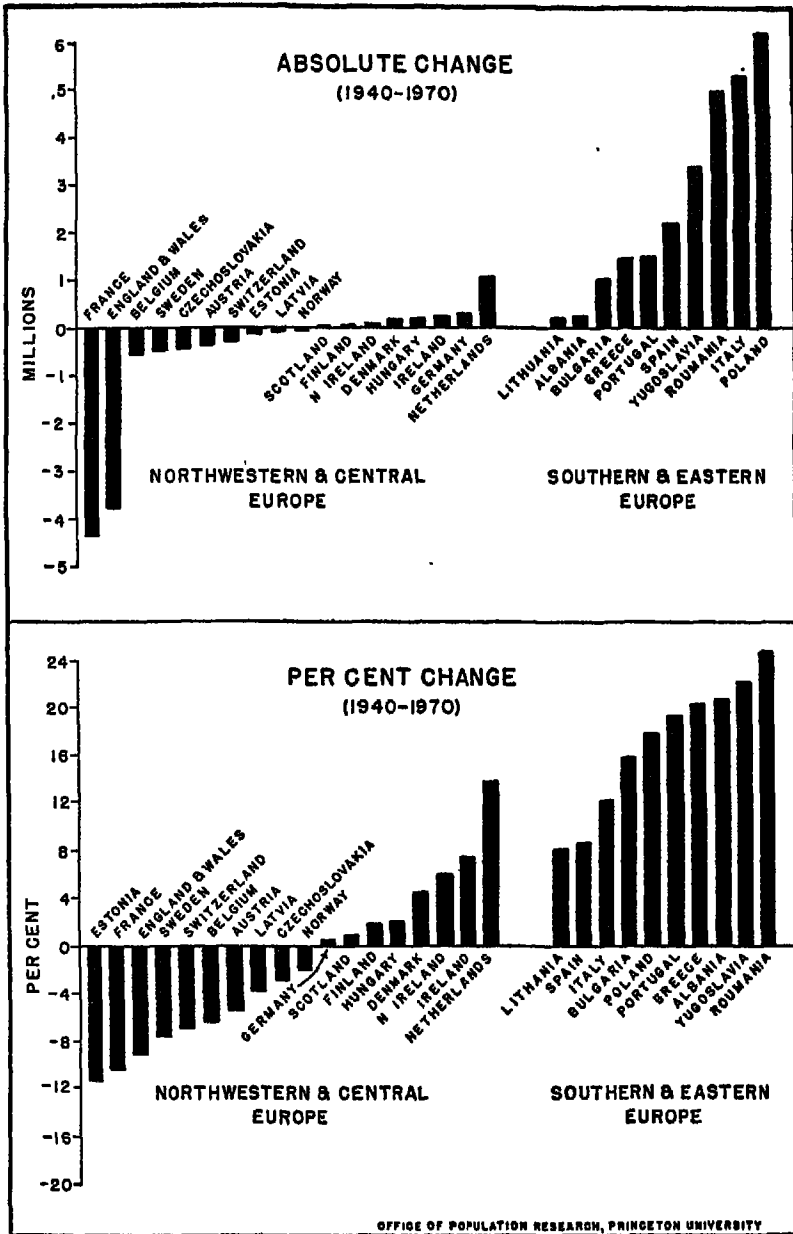


Figure 19. Absolute and per cent change from 1940 to 1970, in projected total population of European countries.

region to reach its maximum population is the United Kingdom and Ireland. Four-fifths of the population of the British Isles live in England and Wales. Throughout the nineteenth century and up to the first World War, England grew with remarkable consistency, 10 to 15 per cent per decade, and was among the fastest growing countries in Europe. The impact of World War I on the English population was comparatively small, but the effects of very rapidly declining fertility have now placed England in an unfavorable position for future growth. Even before the present war there was a strong probability that England's population would commence to fall in the near future. On the basis of the projections, with the exception of France, England and Wales experiences the greatest population decline among the countries of Europe. From its assumed maximum of 41.1 million in 1945 it drops to 37.1 million in 1970, or about 10 per cent.

In many respects the demographic history of Ireland has been the exact opposite of that of England and Wales. Ireland is unique among European countries in that it has consistently lost population since 1840. At that time Ireland was the most populous of the small European countries, with more people than the four Scandinavian countries combined. Because of famine and limited opportunities at home, Ireland, above all countries, has established a tradition of emigration. As a result, it is the only country that can truthfully be said to have resolved a problem of acute national overpopulation by mass emigration. Today Ireland has little more than half the number of people it had in 1840. Now, when population growth is slowing in other countries, Ireland also appears to be approaching stability, but in the other direction. Owing to the decline of emigration, the populations of both the Irish Free State and of Northern Ireland have remained fairly stable through the 'thirties, that of the latter having actually grown in the period. In contrast to most Western countries the population of Ireland is still replacing itself. Without migration it grows until 1965 in both North and South, according to the projections of present trends.

Scotland occupies an intermediate position between England and Ireland. Like England, it grew rapidly in the nineteenth century, but since 1900 emigration has kept growth at a low rate. Though in recent years the reproduction rate for Scotland has

been below replacement, the favorable age distribution arising from past trends provides the basis for growth to 1955 at projected rates of fertility and mortality. In contrast with the situation of England, the 1970 population of Scotland differs from the 1940 figure by less than one per cent.

Northern Europe, including Scandinavia and the Baltic states of Estonia and Latvia, is in a position comparable to that of the British Isles. Sweden, the most populous of the Scandinavian countries, is in a demographic position not unlike that of England and Wales, and these two countries at the outbreak of war had the lowest reproduction rates in Europe. According to the projections Sweden reaches her maximum population about 1945 and afterward follows an accelerating rate of population decline.

The remainder of Scandinavia shares the demographic outlook and composition of Scotland. Denmark, Finland, and Norway have all been countries of emigration, and this, combined with early declines in the birth rate, has resulted in relatively slow population growth in the past few decades. Next to Ireland and possibly Scotland, Norway has furnished a greater number of overseas emigrants in proportion to its population than any other country in Europe. Owing to later declines in fertility, Finland has grown more rapidly than the other Scandinavian countries, and, in fact, passed both Norway and Denmark during the last century. Though not fully replacing themselves in the recent past, on the projections Denmark, Finland, and Norway all continue to grow until 1955-1960. In the absence of war and migration relative stability of population size is indicated. The figure for Norway fluctuates within a range of less than 100 thousand between 1940 and 1970. Denmark and Finland, with approximately equal populations and true rates of growth, follow an almost identical course on the projections, rising to a maximum in each country of about 4 million in 1955-1960.

Despite many cultural differences and a long history as an integral part of the Russian Empire, Estonia and Latvia are included in the Northern European demographic region. These two countries have been under German and Scandinavian influence for many years and in Czarist Russia were outstanding as areas of low birth rates. Aside from sharp disturbances associated with the first World War, their demographic history has been that of

Western rather than Eastern Europe. Thus in Figure 18 they appear as countries of low population growth, in contrast with Lithuania, which resembles Poland in this respect. Regardless of the political future of Estonia and Latvia, the outlook for future population growth in this area is unfavorable. The two countries have such small numbers that the net effect of population change within them is small either on the figures for the Northern region as here constituted, or on those for Europe as a whole. However, as agricultural countries, they are interesting exceptions to the generally close association of low fertility with urban living and industrial economy.

The West-Central region is a rather large and, to a certain extent, anomalous classification. It includes those countries which, with the British Isles and Scandinavia, have progressed furthest in economic development and urbanization, and hence generally in demographic evolution. Population changes indicated by the projections are small in the next thirty years. The maximum population of the region is reached between 1950 and 1955, followed by a gradually accelerating decline.

Of all European countries except Ireland, the demographic history of France has diverged most from the usual pattern. In the early eighteenth century France was probably the most populous country in Europe. She was passed by Russia in the eighteenth century, by Germany about 1870, by the British Isles about 1900, and by Italy about 1930 (Figure 20). The projections, of course ignoring war and migration, show Poland passing France about 1960. Of the major powers France alone failed to share in the very rapid growth of the last century. Her rate of growth was the lowest in Europe, aside from Ireland, and in recent decades even that was maintained only through immigration. Since 1935 actual decline has begun. Almost all other countries were growing and, barring war, would have continued to grow for a few years. Rapid increase in the past has left them with an abnormally large proportion of the total population in the young adult ages producing all the births and few of the deaths. France, on the other hand, cannot grow from this source. Her population has aged into the position that other countries will approach in the future.

However, in France the prospects for population decline are less striking than might be expected on the basis of her prewar

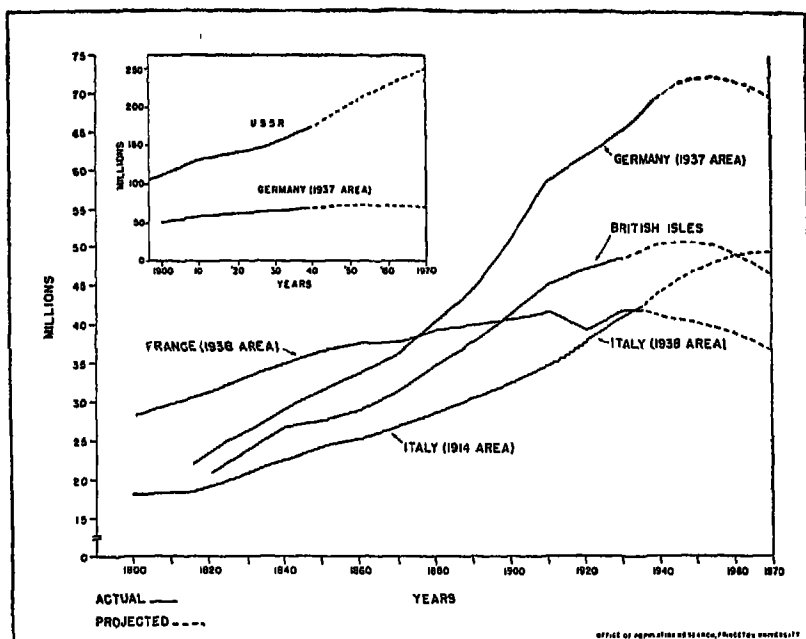


Figure 20. Population trends in selected countries, 1800-1970.

natural decrease. Though fertility decline has gone on much longer, it has proceeded more slowly in France than elsewhere. In the late 'thirties France's net reproduction rate was higher than the rates of Austria, Belgium, Czechoslovakia, and Switzerland and was substantially higher than that of Germany before the introduction of National Socialist pro-natalist policies. Consequently, the projections do not indicate so rapid a population decline in France as might be anticipated. From her 41.2 million people in 1940, France falls about 10 per cent in the thirty years, to 36.9 million in 1970. From 1945, the projections for France and for England and Wales parallel each other very closely and the total populations never differ from each other more than two per cent.

Belgium grew much more rapidly than France during the nineteenth century, and as in most Western European countries, the decline of fertility has been so rapid that population growth continues on the impetus of the past. Nevertheless, on the projections Belgium reaches her maximum population about 1945, and

in view of the war may already have done so. From then on, Belgium faces the probability of an accelerating decline paralleling that of Sweden, France, and England.

The Netherlands is the one country in Western and Central Europe that was still more than replacing itself before the war. The birth rate of 20 to 21 per thousand was not high; every country in Europe except France had a higher birth rate before World War I. But the Netherlands has successfully combined this moderate fertility with the lowest death rate in the world and the highest life expectancy in Europe. This is not to say that the Netherlands is an exception to the rule of fertility decline in Western Europe. Economic stability and religious feeling have apparently operated to slow the process in the Netherlands, but the decline has nevertheless been very great. On the assumptions of the projections, the Netherlands reaches its maximum population between 1965 and 1970.

Germany has experienced an exceedingly rapid transition from a state of high fertility and rapid growth to one of low fertility and incipient decline. Up to about 1910 Germany had the highest birth rate in Northwestern and Central Europe. By 1933 it had one of the lowest. In that year the net reproduction rate was 0.76, except for Austria, the lowest rate in Europe. The rapidity of the decline provoked a great deal of concern in Germany. When the National Socialists came to power, they introduced an active population policy that not only temporarily checked the downward trend of births but, in fact, raised them substantially. Between 1933 and 1939 the annual rate of increase was 0.83 as compared with 0.55 in 1925-1933. However, both in and outside Germany it has been recognized that the achievements of German population policy were limited and that the basic demographic situation has remained fundamentally the same. In 1939 the birth rate was 20.3 and the net reproduction rate stood at about unity. Even were this higher level to be maintained, the German population would ultimately cease to grow. The projections for Germany, which are based on the relatively high fertility levels of 1937-1938, indicate a rising population to 1955. In 1970, as in 1940, the population is just under 70 million. Without radical changes of boundaries Germany will continue to be, by a wide margin, the most populous nation of Europe outside of Russia.

Austria and Switzerland follow the German pattern. In the middle 'thirties Austria had the lowest birth rate and lowest net fertility in Europe. In that period Austria was losing population by natural decrease. The "Anschluss" with Germany brought about a spectacular revival; in 1939 and later years the Austrian birth rate was actually higher than that of the old Reich. Because the projections take into account the rise of fertility since "Anschluss," a rise in population is indicated up to 1945-1950, when Austria attains a maximum of 6.7 million. Without fertility rises a similar future trend is indicated for Switzerland, with a maximum population of 4.3 million reached about the same time.

The inclusion of Czechoslovakia and Hungary with Western European countries may seem anomalous. Bohemia and Moravia share the demographic characteristics of neighboring Germany and Austria and may already have reached their maximum populations. Slovakia and Ruthenia are Eastern European both geographically and culturally. Since the populations of Bohemia and Moravia are larger, the country as a whole has much more the characteristics of Western Europe. On the basis of the projections Czechoslovakia reaches its maximum of 15.6 million about 1950-1955. Hungary has not proceeded so far in demographic evolution as has Czechoslovakia. Nevertheless, since 1930 Hungary has scarcely been replacing itself. In company with all Western European countries but only Lithuania among Eastern European ones, Hungary reaches its maximum population on the projections before 1970. In fact the Netherlands, which, like Hungary, has about 9 million inhabitants, passes Hungary on the projections about 1950.

On the basis of the continuation of past trends, Southern Europe, including Italy, Spain, and Portugal, continues to grow throughout the thirty-year period covered by the projections. During the nineteenth century these countries grew less rapidly than the rest of Europe. But by contrast, they have maintained a steady growth with no slackening up to the present time, partly owing to lesser declines in the birth rate and partly as the result of the reductions in overseas emigration. The projections assume a continuation of fertility declines in these countries, such as have already occurred in Catalonia and Northern Italy. Nevertheless, recent trends do not suggest population decline in Italy or Portu-



gal during the period considered. From a population of about 44 million in 1940 Italy increases to a little short of 50 million in 1970, when growth practically ceases. Since World War I, Italy has passed both France and England and Wales in population. By 1970 Italy is exceeded only by Germany and Russia among the countries studied, with more people than the United Kingdom. Portugal grows from its present 7.6 million to about 9. The projections for Spain are based on inadequate data. Such as they are, they indicate a rising population from 25.6 million in 1940 to a 28 million maximum in 1965.

For several decades Eastern Europe has grown more rapidly than other regions, and the projections indicate that this area will continue to grow while other regions approach a stationary or declining population. The region has two rather clear demographic subregions, the Balkans, and Poland and Lithuania.

It is often overlooked that Poland was one of the largest and most populous states in prewar Europe. Since World War I, Poland has grown much more rapidly than any of the larger nations except the U.S.S.R. Even though fertility decline has been especially rapid in Poland in recent years, the impetus of growth in the past, as reflected in the age distribution, provides the basis for considerable future increase. This growth potential carries her projected population well above those of France and England and Wales by 1970. From her prewar population of about 35 million Poland grows to over 41 million in 1970, speaking, of course, within the assumptions of the projections. But regardless of war the end of population growth was clearly indicated in inter-war trends. Poland's net reproduction rate had fallen to little more than replacement, and, barring a radical change in trends, would have fallen below replacement in a few years, with the prospect of ultimate population decline, albeit a generation behind England and France. Lithuania, though subject to certain of the influences that have reduced fertility in the other Baltic countries, generally follows the Polish pattern.

Even more recently than Poland, the Balkans have been exposed to the urban and industrial civilization of the West. In reality this influence has become widespread in the Balkans only since World War I. Once begun, the process, if anything, has proceeded more rapidly in the Balkans than in its older center of develop-

ment in Western Europe. Since the first result of this influence on population is an accelerated increase, all of the Balkan nations grew very rapidly during the 'twenties. But the tempo of cultural diffusion has so quickened that even in the 'thirties fertility was declining more rapidly than mortality. The trend to lower rates of population increase is clearly observable in all Balkan countries.

This trend is particularly noticeable in Bulgaria and those sections of Roumania and Yugoslavia formerly parts of the Austro-Hungarian Empire. On the assumptions of the projections, Bulgaria grows only about a million from 6.3 million in 1940 to 7.3 million in 1970. The fall of the birth rate has been so precipitous that the Bulgarian people probably were barely replacing themselves when the war broke out. Nevertheless, the rapid growth of the past, with its resultant age distribution favorable to high birth rates and low death rates, would support continued, though decreasing, growth up to 1970.

Greece has not shown so rapid a decline in natural increase as has Bulgaria. The recent history of the country has been much affected by the exchange of populations with Turkey and Bulgaria during the 'twenties, which brought a net gain of a million persons to Greece. Nevertheless, the same forces are obviously at work as in other European countries, and declining rates of population growth are implied in past trends. The projected population of Greece, about 7.2 million in 1940, rises to 8.6 million in 1970.

The same pattern of continued growth at declining rates is indicated for Yugoslavia and Roumania. On the projections Yugoslavia continues to grow rapidly for some time. She had probably already passed her sister nation, Czechoslovakia, in 1940. Ignoring the obvious effects of war, the projections suggest a rise from 15.2 million in 1940 to 18.5 million in 1970. Of all countries considered up to this point, Roumania has progressed least in demographic evolution. In size and population Roumania, prior to the war, was one of the important states of Europe. At 20 million it had a population as large as the total for Northern Europe. In contrast to the prospect of a relatively stable population in Western Europe, the projected population of Roumania grows one-fourth, to over 25 million, by 1970. But even in Roumania the drift to lower birth rates has been unmistakable. From an average of 37.9 per thou-

sand for 1921-1925, the Roumanian rate had fallen to 28.3 in 1939.

Without exception the countries of Northwestern and Central Europe cease growing by 1970 according to the projections, but almost every country in Eastern and Southern Europe is still growing at that time. However, every country in the latter region has given clear evidence that it has at least started on the path leading to an end of population growth.<sup>1</sup> In the U.S.S.R., on the other hand, an extrapolation of interwar trends does not necessarily predicate a future slackening of population increase.

Soviet Russia, like Czarist Russia before it, has a history of tremendous population increase. It seems probable that two centuries ago Russia, or at least European Russia, had fewer inhabitants than the France of that period, despite its enormous territory. Today the U.S.S.R. has over four times the population of France and over twice that of Germany, its nearest rival in Europe. Between 1926 and 1939 Russia's natural increase apparently was 23 million, in spite of the loss attendant upon collectivization and other social policies in the early 'thirties. Even on the assumption of declines patterned after those of the West, present fertility levels are such that the Russian population would grow very rapidly for the thirty years covered in the projections. In 1939 the Russian census reported 170 million people. According to the projections, assuming, as they do, declining fertility and mortality, the Russian population is no less than 250 million in 1970. This would constitute an increase of population greater than the total existing or prospective population of Germany. Despite war and revolution the Russian population has grown 55 per cent since 1900. The projected increase of 44 per cent between 1940 and 1970, therefore, does not seem implausibly high.

The impact of regional differences in population growth is illustrated in Figure 21. In 1900 the population of Northwestern and Central Europe was well over half again as large as that of either of the two other main regions, Southern and Eastern Europe and the U.S.S.R. Even including the effects of the first World War and the Russian Revolution, these other regions had both made large gains relative to Western Europe by 1940. The Soviet Union

<sup>1</sup> Aside from Albania, for which the statistics are wholly inadequate.

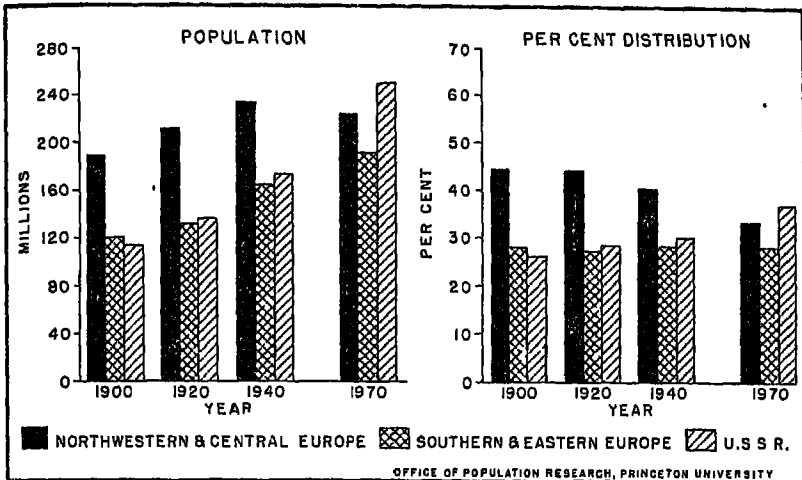


Figure 21. Absolute and per cent distribution of the population, by region, at intervals from 1900 to 1970.

had grown to a figure larger than that of Southern and Eastern Europe.

If the projections were to be realized, by 1970 the population of the U.S.S.R. would exceed that of the Northwestern and Central region. In terms of per cents, the latter area shrinks from a little less than half of the total for Europe and the U.S.S.R. in 1900 to just over a third in 1970. Despite considerable growth, the per cent in Southern and Eastern Europe remains almost constant throughout. Consequently, the percentage loss of Western Europe is almost wholly absorbed by the Soviet Union, which has about three-eighths of the combined total in 1970.

### Conclusion

The rapid population growth of Europe is at an end. Demographically speaking, Europe has reached maturity. Such is the import of past trends and future expectations on any assumptions approximating those of the present study. For two centuries Europe and Europe overseas have had dynamic, growing populations in a comparatively slowly changing world; European populations are now approaching population stability in a rapidly expanding world. At home Europe faces economic and cultural changes made

necessary by the end of population increase and the beginning of an era of stationary, if not actually declining, population. Europe has been geared to a swiftly expanding civilization, one basis of which was a growing population. This element in expansion is now disappearing.

Despite significant regional differences in the stage of demographic evolution, all Europe west of the U.S.S.R. appears headed ultimately for population stability or decline. The projections suggest that every country in Northwestern and Central Europe will cease growing, the majority of them by 1960. Because the war will influence populations downward rather than upward, the projection for the region as a whole may be regarded as a maximum in the absence of widespread and successful pro-natalist policies or immigration on an unprecedented scale. In contrast with the past, Western Europe will not have the problem of providing a living for constantly growing numbers. The problems are rather those of (1) present distribution in relation to resources, (2) adjustment of the economy to a stationary or declining population, (3) consideration of immigration into Western from Eastern Europe, and (4) readjustment to the greater importance of Eastern Europe in the economic and political affairs of the continent. At least temporarily Eastern Europe will expand in population relatively to the West. The least developed areas, and in many ways those least suitable for absorbing increasing numbers, will be the chief sources of growth. To meet this situation some eastward movement of capital and some westward movement of people would seem to be necessary. Differential population growth is, of course, only one among many determinants of economic and political change. But this, combined with the probable economic development of the area, suggests that Eastern Europe is destined to play a greater role in the Europe of the future.

Soviet Russia is growing much more rapidly than the rest of Europe and predictions regarding future population trends are more difficult. Even assuming that the U.S.S.R. follows the Western European pattern of fertility decline, as the remainder of Eastern Europe is doing, the projections suggest a population 25 million greater than that of Northwestern and Central Europe by 1970. War losses may reduce this margin but the potentialities of

very great population growth in Russia will not be eliminated by the war. However, this large population growth, if it occurs, will probably not create the problem that it would in other sections. The U.S.S.R. is the outstanding example today of a country with a large, rapidly growing population and ample room in which to expand.

### CHAPTER III

## THE DEMOGRAPHIC EFFECTS OF WAR AND THEIR RELATION TO POPULATION PROJECTIONS

THE population projections presented in this report do not take account of actual and possible effects of the present war. The greatest losses may still be in the future and only the crystal-gazer would venture to predict their amount and distribution. Nevertheless, the fact of war is inescapable. The usefulness of the projections will unquestionably be affected by its impact. But war is not an extraordinary phenomenon in Europe; no generation throughout European history has completely avoided war. Great historical movements, not to mention the European population itself, have effectively survived innumerable conflicts.

The projections were made for countries as they existed before the war on the assumption of a smooth continuation of past trends. War may affect their predictive validity in three ways: (1) the map of Europe may be so altered that the entities for which the projections were made will have been dissolved beyond recognition; (2) there may be so shattering a destruction of life and movement of people that the size and structure of the populations will be completely changed; (3) the war may so alter underlying forces producing past demographic trends that they will not continue into the future.

Boundaries will unquestionably be redrawn. Countries may disappear and entirely new political unions may be organized in defiance of existing boundaries. But unless these changes are accompanied by more severe losses than have yet occurred and by the alteration of past demographic and migration trends, the general European pattern of population change will be that described by the projections. If so, no matter how the boundaries are drawn, there will be a Western Europe well advanced in its demographic evolution, from around 1960 experiencing actual decline; a Southern and Eastern Europe growing rapidly in the next decade or so, but by 1970 having reached a situation of imminent decline; and a very rapidly growing Soviet Russia, with perhaps some tendency towards a declining rate of growth along the path already followed by the rest of Europe.

*The Nature of Population Losses Resulting from War*

It is obvious that the force of the impact of war casualties on the population will depend on the ultimate magnitude and duration of war operations, which are unpredictable at this time. However, it may prove useful to discuss the general effects of war on populations and to illustrate the demographic results of major hostilities from the experience of World War I. Some indication of modifications in the projections that might be expected may be found in this experience.

The measurement of the effects of war on population is not a simple problem even for the last war and for countries with the best statistics. The destruction of life in modern war is not confined to the battlefield or even to the armed forces. There are civilian losses owing directly to war operations, especially to air attack. There is increase in disease and death associated with the strain of war effort, lower levels of living, the weakening influence of malnutrition, and the relaxation of public health control. In the more advanced stages of war's disorganization, famine and epidemics may destroy millions. Even after the war is over, there is an excess over "normal" deaths owing to mortality of military casualties, of refugees, and of those physically weakened by the hardships of war conditions.

From the demographic viewpoint, war deaths do not represent the total war loss. Numerically, a deficit of births may be and frequently is quite as important as an excess of deaths. The loss of births resulting from mobilization of the army has been one of the decisive demographic influences of war, evident among neutrals as well as belligerents. War usually produces distress migration of refugees and, more recently, forced population exchanges. These latter, in particular, may permanently change the character of the population in a large area, as they did in Macedonia and Thrace following the Greco-Turkish hostilities of 1920-1922. To any country a loss by emigration or gain by immigration is quantitatively as significant as a loss by death or gain by birth.

Finally, the social consequence of war and its outcome may affect basic demographic trends. The optimism of victory or the discouragement of either defeat or costly victory may well be manifested in altered trends in birth and death rates following the war.



Economic changes accompanying war may possibly alter the biological balance of the population. In the present conflict war may bring about a contraction or expansion of active governmental policy in regard to population problems.

Furthermore, the "effects" of war are in large part a function of the time at which one chooses to measure those effects. Every existing population is the cumulative product of an infinite historical experience. Undoubtedly, the influence of the Napoleonic wars on the population of France persists to this day, and if one had the patience and the statistics, it might be possible to trace it through. More concretely, the effect of the Franco-Prussian War is still observable in the age pyramids of France and Germany, where the persons born in 1871 were reduced by mobilization.

### *World War I*

The precise measurement of the demographic effects of war is an indeterminate problem. Direct war casualties, however, are frequently recorded with precision, and even excess civilian mortality and the loss of births may be estimated for short periods within reasonable margins of error. In the following discussion a brief survey will be given of such immediate demographic effects of World War I. This discussion may serve to suggest the possible effects of the present conflict.

The most spectacular demographic aspect of war is, of course, military casualties. In the last war there were probably over 8 million deaths in the armed forces of European belligerents. Estimates of the total losses range from 7 to 11 million, and the figures for Russia, for instance, can only be regarded as intelligent guesses. Of about 60 million men mobilized in Europe about 15 per cent appear to have died in service. This loss amounted to perhaps 8 per cent of all male gainful workers, and somewhat over 2 per cent of the total population.<sup>1</sup>

The proportion of deaths in the armed forces naturally varied from country to country. Those strenuously engaged in the campaigns had a higher proportion of their population under arms and a heavier percentage of deaths among mobilized men. As may be observed in Table 3, the greatest numerical losses, including

<sup>1</sup> Estimates made by Marks, Herbert H. *Some Relations of War to Population Study*. New York, Metropolitan Life Insurance Co. (unpublished manuscript).

TABLE 3

## Estimated Population Deficits as Result of World War I

(000's omitted)

Countries (Prewar boundaries)	1914 Popula- tion <sup>1</sup> (1)	Mili- tary Losses <sup>2</sup> (2)	Excess Civilian Deaths over Age 1s <sup>1</sup> (8)	Deficit of Births <sup>2</sup> (4)	Reduc- tion of Infant Deaths <sup>2</sup> (5)	Total Deficit of Population	
						Number <sup>4</sup> (6)	Per Cent (7)
United Kingdom	46,085	744	402	709	67	1,788	8.9
England and Wales	36,967	641	329	599	56	1,518	4.1
Scotland	4,747	88	84	70	7	180	8.8
Ireland	4,871	20	39	40	4	95	2.2
France	39,800	1,820	240	1,686	172	8,074	7.7
Belgium	7,662	40	102	811	37	416	5.4
Italy	35,859	700	800	1,426	191	2,785	7.6
Serbia and Montenegro	3,400	825	450	886	47	1,064	81.3
Roumania	7,771	250	430	508	97	1,088	14.0
Greece	4,782	25	100	200	80	295	6.2
Portugal	6,155	4	157	121	18	264	4.8
Germany	67,790	2,000	787	8,158	459	5,486	8.0
Austria-Hungary	53,018	1,100	963	8,600	600	5,068	9.5
Bulgaria	4,852	70	98	817	41	444	9.2
Norway	2,486	—	26	—	—	26	1.0
Sweden	5,680	—	57	26	2	81	1.4
Denmark	2,866	—	18	1	—	19	.7
Netherlands	6,240	—	86	8	1	98	1.5
Switzerland	8,897	—	28	59	5	77	2.0
Spain	20,578	—	321	133	20	484	2.1
Europe (exc. U.S.S.R.)	318,871	6,578	5,010	12,596	1,787	22,397	7.0
U.S.S.R. <sup>5</sup>	140,405	1,500-2,000	—	—	—	26,000	18.5

<sup>1</sup> Official estimates, or estimates computed on the basis of the last previous census and vital statistics to 1914.

<sup>2</sup> The data on military casualties are generally those given by Louis Hersch in his careful study, "La mortalité causée par la guerre mondiale," in *Métron*, Vol. V, No. 1, pp. 89-188, and Vol. VII, No. 1, pp. 8-82, June, 1925, and December, 1927. These data were compiled sufficiently long after the war to permit a cool judgment of the facts with the use of materials made available some years after the peace. In a number of cases his figures differ substantially from earlier estimates, which of necessity were often based on scanty and sometimes prejudiced evidence. Other collections of estimates of military deaths include: International Labour Office, *Enquête sur la production. Rapport général*, Geneva, 1924, Vol. IV, pp. 4-88 (including the responses of governments to questionnaires on war losses); Dumas, Samuel, and Vedel-Petersen, K. O. *Losses of Life Caused by War*, Oxford, Clarendon Press, 1928, pp. 183-182 (including a compilation of earlier estimates); Nickerson, Hoffman. *Can We Limit War?* New York, F. A. Stokes, 1934, pp. 107-111. Nickerson's estimates, based on material from almanacs and the *Encyclopædia*

*Britannica*, are also given in: Wright, Quincy. *A Study of War*. Chicago, University of Chicago Press, 1942. Vol. I, p. 664.

In the above table the military losses for Austria-Hungary, Bulgaria, Greece, and Portugal differ from those given by Hersch. The figure for Austria-Hungary is that given by Winkler on the basis of more recent information in: Grebler, Leo, and Winkler, Wilhelm. *The Cost of the World War to Germany and to Austria-Hungary*. New Haven, Yale University Press, 1940, p. 144. The figure for Bulgaria is an estimate based on the ratio of males to females at ages 20-54 before and after the war. Other estimates range from 88 to 101 thousand. Hersch gives a figure of 100 thousand for Greece as a pure guess, including the results of the Greco-Turkish War. In view of the fact that Greece entered the World War only in June, 1917, this figure seems high. The Greek response to the International Labour Office questionnaire in 1921 gave a figure of only 10,000 officially reported as killed. Responding to the same questionnaire, Bulgaria reported 88,000 known killed. The figure of 25,000 assumes about the same ratio between the known and estimated casualties in the Greek as in the Bulgarian armies. Military losses in the Greco-Turkish War apparently amounted to about 84,000, according to A. A. Pallis in: Andreades, A. and others. *Les effets économiques et sociaux de la guerre en Grèce*. New Haven, Yale University Press, 1928, p. 184. The figure for Portugal is arbitrary. (Hersch gives a figure of 8,000, which includes losses of Portuguese Colonials.)

\* Civilian deaths and birth deficits attributable to the war were estimated by comparing the reported figures with those expected for the period 1915-1919 in the absence of war. The expected numbers of births and deaths were obtained by applying the average of the birth and death rates in the years 1910-1914 and 1920-1924 to the prewar population. Where the rates for 1914 were obviously affected by the war, this year was counted a part of the war period and averages were based on the years 1910-1918 and 1920-1924. This procedure was followed in order to take account of the downward drift of both birth and death rates that might have been expected to continue in the absence of war. In almost every case (France being the only important exception) both birth and death rates were lower in the postwar period than in the prewar period, though in some instances postwar birth rates may have been higher than they would have been without the war. This factor tends to give too high an expected number of births. On the other hand, the use of the 1914 population as a base (instead of a larger computed population for 1917) reduces the expected number of both births and deaths.

The excess civilian deaths thus computed underestimate the actual war loss because infant deaths were generally reduced in number as the result of birth deficits (i.e., there were fewer infants exposed to the possibility of dying). Consequently, for the purposes of the above table, the estimated reduction of deaths from this source (column 5) was added to the civilian loss to approximate the increase in deaths at age 1 and over. The reduction of infant deaths as the result of birth deficits in the war period was estimated by applying the average infant mortality rate of the periods 1910-1914 and 1920-1924 to the estimated birth deficits. The method is not precise in that any increase in infant mortality arising from war appears as an increase in deaths at ages over 1, this bias being partly balanced by the fact that no allowance was made for reduction in deaths at ages above 1 arising from birth deficits.

In some countries vital statistics were nonexistent, or the registration system was disrupted. In France, Belgium, and Italy it was necessary to use estimates for areas in combat zones. For Austria-Hungary it was assumed that births and deaths in areas without data for the war years followed the same trends as similar regions in which registration was continued. Hersch's estimates, in the articles cited above, were used for Serbia and Roumania. The figures for Greece are arbitrary, there being neither adequate vital statistics nor comparable pre- and postwar censuses on which to base a reliable estimate. In some countries (notably

both men killed and those dying from disease, were suffered by the German and Russian armies. About 2 million Germans lost their lives in military service during the war. Russian losses have been estimated at from 1.5 to 2 million, of course excluding losses in the civil war period. Among the other major belligerents, France's losses have been estimated at about 1.4 million, including 75 thousand deaths among Colonial troops; Austria-Hungary's at 1.1 million; the United Kingdom's at 744 thousand; and Italy's at 700 thousand. Data for the minor belligerents are very unreliable. Serbia and Montenegro, with estimated deaths at 325 thousand, led the list. Roumania is believed to have lost 250 thousand; Bulgaria, 70 thousand; Belgium, 40 thousand; Greece, 25 thousand (not including losses in the Greco-Turkish War of 1920-1922); and Portugal, 4 thousand. The figures for Serbia and Roumania are probably too high, owing to the inclusion of all the missing among those listed as dead.

Huge and distressing as these losses are from a humanitarian point of view, they represent only a small part of the total populations concerned. Among the major belligerents France suffered most severely in relation to her total population at the beginning of the war, 3.3 per cent of that population having been lost in the armed services. The comparable loss in Germany was 3 per cent, in Austria-Hungary and in Italy about 2 per cent, and in the United Kingdom 1.6 per cent. Among the lesser belligerents Serbia and Montenegro were outstanding with an estimated loss of around 10 per cent of the prewar population in the severe Serbian cam-

Bulgaria and Hungary) where vital statistics were used, there is reason to suppose that the war figures were especially incomplete. Such incompleteness in the reporting of births and deaths tends to exaggerate the deficit of births and to minimize the excess civilian mortality.

It should be emphasized that all estimates of war loss to the civilian population, and, even more, estimates of birth deficits attributable to war, are only rough approximations that may vary radically depending on the assumptions made as to the number of births and deaths that might be expected to occur in the absence of war.

<sup>4</sup> Column 6 is the sum of columns 2, 3, and 4 minus column 5.

<sup>5</sup> Figures from Lorimer, Frank. *Population of the Soviet Union: History and Prospects*. (A forthcoming monograph of this series.) Of a total population loss of somewhere in the vicinity of 28 million, 2 million was attributed to out-migration, less than 10 million to birth deficits, and more than 16 million to military and civilian deaths above the expected number in the absence of war. Lorimer estimates that about one-third of the total loss occurred during the war and two-thirds during the revolution.

paigns and in the retreat across Albania. Despite the unreliability of Serbian statistics, the known facts indicate that Serbia probably suffered greater proportionate military losses than any other European country. Roumanian losses in the disastrous 1917 campaign were also high, estimated at over 3 per cent of the population. Bulgaria probably lost only about 1.5 per cent, Belgium and Greece only about one-half of one per cent.

The military fatalities are more significant when contrasted with the number of male gainful workers. France and Germany each lost about 10 per cent of their male gainful workers, Italy appears to have lost 6 per cent, and the United Kingdom 5 per cent.<sup>1</sup> Of course, these losses include only men who died outright and do not measure the full effect of the war on the labor force, which would have to include those wholly and partially incapacitated for work through war injuries.

Furthermore, deaths were concentrated in the young, economically most productive ages. Forty per cent of the German dead, for instance, were in the age group 20-24 and 63 per cent were between 20 and 30, as compared with 23 per cent in their thirties and only 4.5 per cent forty and over. However, these proportions changed notably in the course of the war, as manpower in the normal fighting ages was exhausted and it became necessary to draw more heavily on the younger and older men. In 1914, 72 per cent of all deaths were of men aged 20-29; in 1918 the percentage had dropped to 57. Deaths among men 15-19 were only 4.5 per cent of the total in 1914 but 14.2 per cent in 1918. Deaths of men over 35, only 7.8 per cent of the total in 1914, were 15.1 per cent in 1918.<sup>2</sup>

Similar losses were experienced by the French, though a higher proportion of the casualties was among older men, owing to the fact that a larger proportion of France's available manpower was in the older military ages. Since the French data are based on the year at which the conscript would ordinarily be called up, deaths are not, strictly speaking, apportioned by age. One-fourth of all deaths occurred among the four classes 1912-1915, 27 per cent of the mobilized men in these classes having been lost in the fight-

<sup>1</sup> International Labour Office. *Enquête sur la production. Rapport général*. Geneva, 1924. Vol. IV, p. 29.

<sup>2</sup> Meerwarth, Rudolf. *Die Einwirkung des Krieges auf Bevölkerungsbewegung, Einkommen und Lebenshaltung in Deutschland*. New Haven, Yale University Press, 1932, p. 71.

ing. Of the class of 1914, recruited just before the opening of war, 29.2 per cent perished in the four succeeding years.<sup>1</sup> Data on the distribution of military deaths by age are not available for most countries, but it is clear from the postwar age distributions of all belligerents that casualties were concentrated in the ages 20-34.

The causes of death are, of course, important in any analysis of war mortality. As is well known, mortality in past wars has generally been much greater from disease than from actual combat. Soldiers, living under crowded and unsanitary conditions, have always been peculiarly vulnerable to epidemics. Nineteenth century campaigns in Eastern Europe resulted in far more deaths from cholera and typhus than from gunfire.

Thanks to efficient medical and sanitary control on both sides, deaths from disease were held to a minimum on the Western front in the last war. In the three major Western armies, over half of all mortality was attributable to deaths on the battlefield and a large part of the remainder was due to deaths from wounds. As might be expected, disease played a much greater role in the East. Roughly one-fourth of the fatalities in the Austro-Hungarian armies were attributable to disease,<sup>2</sup> as compared with about 10 per cent in the German army and about 13 per cent in the French army.<sup>3</sup> Probably a third to a half of Italian losses were the result of disease. In the Balkans the high casualties experienced by the armed forces were undoubtedly associated with germs as much as with bullets.

The civilian population, like the army, suffers war casualties, though of course only a part of these casualties are the direct result of military operations. This appears to be the case even under conditions of air attack. In England only a part of the rise in the death rate in 1940 was owing to loss of life in the actual air raids. Less spectacular but equally deadly were the conditions caused by air raids: the black-outs, the destruction of dwellings, and the general disorganization of life. Because it is the result

<sup>1</sup> Huber, Michel. *La population de la France pendant la guerre*. New Haven, Yale University Press, 1981, p. 422.

<sup>2</sup> Estimated on the basis of the experience in the first three years of the war, for which figures are given in Pirquet, Clemens. *Volksgeundheit im Krieg*. New Haven, Yale University Press, 1926. Part I, pp. 67-68; and Grebler, Leo, and Winkler, Wilhelm. *The Cost of the World War to Germany and to Austria-Hungary*. New Haven, Yale University Press, 1940, p. 144.

<sup>3</sup> Meerwarth. *Op. cit.*, p. 69; Marks. *Op. cit.*, p. 18.

of difficult living conditions as well as of military operations, the civilian mortality due to war can only be inferred by comparing actual mortality in war with what might have been expected in its absence (e.g., prewar mortality). In this sense neutrals as well as belligerents suffer war losses.

Estimates of civilian war losses by country are given in Table 3, column 3.<sup>1</sup> In Europe, excluding Czarist Russia, there were 5 million civilian deaths in the war period over what might have been expected in the absence of war. In terms of absolute figures, Austria-Hungary emerges as the greatest sufferer from excess civilian mortality, with perhaps nearly a million additional dead as a result of the war. Despite her shorter participation in the war, Italy probably lost about 800 thousand civilians as a result of extremely bad health conditions. The situation in Germany was better, but owing to the larger population, civilian losses were quantitatively almost as great as in Italy. Serbia and Montenegro suffered severely from civilian deaths both in absolute and in relative figures. French and English losses were relatively small, though the figures for the former are biased downward because an exceptionally high proportion of her population was mobilized and therefore removed from the possibility of dying as civilians.

When civilian deaths, thus computed, are added to military deaths, the total impact of war mortality on the population may be estimated. In Russia the total mortality attributable to war must have been enormous, and probably amounted to as much as 16 million. Aside from Russia, Germany and Austria-Hungary experienced the greatest quantitative losses. Total losses from excess mortality ranged from around one per cent of the prewar population in the Scandinavian countries to possibly 20 per cent in Serbia. Though the estimates are little more than guesses, the Serbian population probably had relatively higher military and civilian casualties than any other European country. War losses were also severe in Roumania; possibly as many as 9 or 10 per cent of the prewar population were destroyed. Among the major powers France, Italy, Germany, and Austria-Hungary all lost about 4 per cent. The United Kingdom and Belgium were not so seriously

<sup>1</sup> These figures include deaths attributable to the influenza pandemic on the assumption that it would not have occurred, or at least would have been much less virulent, in the absence of war.

affected, with losses amounting to about 2.5 per cent of the population for the former and under 2 per cent for the latter. Portuguese losses were due to the severity of the influenza epidemic, the force of which is reflected in the relatively high mortality of Spain, a neutral.

In Europe, excluding Czarist Russia, the total deaths resulting from the war may be estimated at well over 11 million, somewhat under 7 million of which occurred in the military forces. Three and one-half per cent of the prewar population died as a result of war. In quantitative terms the total war dead equalled the population of Scandinavia; the military dead equalled the population of the Netherlands.

The loss of life is logically not complete without the loss of births. Estimates of the unborn as a result of military mobilization are naturally even less exact than estimates of excess mortality. Nevertheless, the same principles may be applied. Prewar and postwar birth rates may be averaged to obtain an expected birth rate in the war period, the deviation from this estimated "normal" rate being assumed to be attributable to war. The application of this procedure reveals astonishingly high birth deficits in some of the belligerent countries. (See Table 3, column 4.) Because of its large size and its normally high birth rate, Austria-Hungary leads the list with an estimated deficit of 3.6 million births in the war years. Germany lost over 3 million. France, with a small expected number of births, suffered an estimated deficit of less than 2 million and the United Kingdom, which was not fully mobilized until late in the war, lost less than three-quarters of a million births during the war years.<sup>1</sup>

The total war loss of births in Europe (again excluding Russia) may be estimated at 12.6 million, a figure considerably greater than that for the military dead. The total loss of population during the war years may be estimated by summing the excess of

<sup>1</sup> For a discussion of the method of computing birth deficits, see footnote 3 to Table 3. It should be noted that these estimated deficits relate to the war years and that in some cases, especially among the neutrals, they were largely cancelled by the temporary postwar boom in births. Therefore the figures given tend to exaggerate the net birth deficit over a time span that includes the immediate postwar years. Among most belligerents such exaggeration is relatively small because the postwar increase of births was far less than the deficit of the war period, and over a still longer period this increase was cancelled by the reduction in the number of potential parents.



deaths and the deficit of births.<sup>1</sup> (See Table 3, column 6.) In this way the total population loss of Europe, excluding Russia, in the war years amounted to some 22 million people.

The validity of this figure may be checked by a different approach. Between 1900 and 1910 the population of Europe outside the territory of Czarist Russia grew about 27 million or over 9 per cent; between 1910 and 1920, it grew around 8 million or only about 2.6 per cent; in the following decade it again grew rapidly, over 25 million or more than 8 per cent. (See Table 4.) The effect of war on population growth in the decade 1910 to 1920 is clear. Had the population grown as rapidly in 1910-1920 as might have been expected by interpolating the rates of growth in the two adjoining decades, it would have increased some 19 million more than it actually did. When allowance for interdecadal differences in emigration is made, the population of Europe is found to have been growing more rapidly through natural increase in every decade than is indicated by the censuses.

TABLE 4  
Population Growth in Europe,\* 1900-1930

Year	Population (in millions)	Net Change		Estimated Net Loss by Migration (in millions)	Natural Increase	
		Amount (in millions)	Per Cent		Amount (in millions)	Per Cent
1900	284.6					
1910	311.1	26.5	9.3	7.8	33.3	11.9
1920	319.1	8.0	2.6	4.6	12.6	4.1
1930	344.9	25.8	8.1	2.7	28.5	8.9

\* Exclusive of the territory of Czarist Russia. Owing to the difference in areas under consideration, the population figures differ from those given in Table 1, p. 45, though derived from the same sources.

Emigration appears to have removed about a fifth of the natural increase in 1900-1910, a third in 1910-1920, and less than a tenth in 1920-1930. Interpolating rates of growth for the two neighboring decades, as before, results in an expected growth of 10.4 per cent in the decade 1910-1920, as compared with an actual growth, including that lost by migration, of only 4.1 per cent. The differ-

<sup>1</sup> Minus the reduction in the number of infant deaths attributable to birth deficits. See footnotes 3 and 4 to Table 3 for explanation of procedures used.

ence, which may be regarded as an estimate of Europe's loss of population as a result of the war, amounts to 6.3 per cent of the prewar population, or about 20 million people.

At best the results of such computations are very rough estimates. About all that may safely be said is that Europe outside Czarist Russia probably lost from 20 to 22 million people as a result of the war. What this means, in effect, is that Europe lost the equivalent of her natural increase from 1914 through 1919. The population in 1920 was about what it was at the outset of war.

There is no wholly satisfactory method of measuring loss of population as the result of war and revolution in Russia. It is certain that losses were proportionately greater than they were in the rest of Europe; in total they probably exceeded those for Europe outside of Russia. By an ingenious use of scant available materials, Lorimer has estimated the population deficit in the interwar territory of the Soviet Union as the result of war and revolution at approximately 28 million.<sup>1</sup> This includes an estimated 2 million net loss by emigration. He estimates that about one-third of the remaining loss was incurred during the years of the first World War, two-thirds in the following years. When allowance is made for losses in areas ceded by Russia and not included in the above survey, the total population deficit from war and revolution in Europe and the U.S.S.R. may thus approximate 50 million.

### *World War II*

Naturally, the demographic effects of the present conflict are unpredictable. Military losses of life in most European countries have probably been less or no greater than those of the comparable period of the last war. Up to the middle of 1943 the military casualties of all campaigns other than the Russian and the Finnish had not been sufficient to disturb existing population structures seriously. Even if the Russian campaign is included, military losses had very likely not yet exceeded those of the last war in Europe as a whole.

It is possible that civilian deaths in the present struggle will exceed those in the last war. In the first place certain peoples,

<sup>1</sup> Lorimer, Frank. *Population of the Soviet Union: History and Prospects*. (A forthcoming monograph of this series.)

notably the Jews, have been singled out for ruthless extermination. Secondly, a larger area has been subjected to the disorganizing influence of defeat and enemy occupation. Counterbalancing this, however, is the likelihood that disease and epidemics may be more efficiently controlled, particularly in Eastern Europe. Great strides in preventive medicine and nutrition have been made during recent decades, and these, coupled with notable cultural advances among Eastern European populations, had brought about health conditions in Eastern Europe comparable to those existing in Western Europe before the last war. For instance, the English death rate in 1913 was 13.8 per thousand, as compared with 13.4 reported in Bulgaria (1939), 13.0 in Greece (1939), 13.7 in Hungary (1939), and 13.8 in Poland (1938). The German death rate in 1913 (15.0) was exceeded in the East in 1938 only by those of Roumania, Yugoslavia, and Albania. Since Germany in 1913 had an age distribution closely resembling those in Eastern Europe today, it is apparent that health conditions in Eastern Europe were not unlike those in Germany before the last war, even when reasonable allowance is made for possible deficiencies of the data for Eastern European countries. Since the greatest losses of World War I were experienced in the East, the improvement in basic health conditions may be an important factor in reducing war mortality of soldiers and civilians from disease. It seems reasonable to suppose that a larger part of the total loss of life in the present war will result from battle casualties and deliberate extermination (e.g., of Jews) rather than from uncontrolled rise in civilian mortality.

Half of the total population loss in the last war was the result of birth deficits. These will almost certainly be lower in the present war. Even in Eastern Europe the birth rates at the outset of this war were much lower than at the beginning of the last. Consequently, a drop proportionately as great, brought about by the same relative mobilization, would not produce nearly so large a deficit of births. Furthermore, awareness of the birth deficits of the last war brought about efforts on the part of belligerent governments to counteract them in the present conflict, as, for instance, through the judicious granting of furloughs to soldiers.

Obviously, the weight of these different influences on war vital trends cannot be measured at the present time. War-time reports

on casualties, epidemics, and famines are notoriously untrustworthy, especially when based on general impressions. The tendency to exaggerate frequently goes unchallenged because it generally serves propagandistic purposes.

Such information as is available suggests that civilian losses in this war have thus far been less than in the last war. Vital statistics are available for eighty per cent of the population of Europe<sup>1</sup> up to 1942 and for more than two-thirds of that population up to 1943. For those countries with comparable vital statistics from 1939 through 1942,<sup>2</sup> the aggregate drop in natural increase has been progressive but not spectacular. In 1939, which was a relatively normal year in vital trends despite the outbreak of war and its disastrous consequences in Poland, natural increase in these countries amounted to 1,589 thousand.<sup>3</sup> Largely because of deaths in the "blitzed" countries, the figure fell to 1,241 thousand in 1940. Reported deaths were fewer in 1941, but larger decreases in the number of births, especially in Germany, brought a further decline in natural increase to 1,108 thousand. In 1942 the natural increase of the civilian populations in these countries was 1,091 thousand, or half a million less than in 1939. The aggregate loss as compared with 1939 amounts to about 1,300 thousand for the years 1940-1942. This figure represents a much smaller loss than that experienced in these countries during the comparable period of the last war. Estimates for the first World War, similarly made, indicate a cumulative loss of natural increase through 1917 of over a million in France alone, and over two million in the German Empire.

The relatively small losses of civilian population in the countries for which there are statistics is the result of balancing quite mixed trends (Table 5). In a few countries, including certain of those occupied by force, the rate of natural increase has risen during the war years. In Sweden, Switzerland, Denmark, and Bohemia-Moravia natural increase in 1942 was the highest in many years. This phenomenon is the result of the rise in the birth rate, apparently connected with full employment and increases in the

<sup>1</sup> Excluding the Soviet Union, for which prewar as well as war-time vital statistics are not available.

<sup>2</sup> Comprising countries listed in Table 5 for which rates were available through 1942.

<sup>3</sup> The corresponding figure for 1938 was 1,527 thousand.

number of marriages. Similar influences seem to have been at work among the belligerent countries, though mobilization, inferior health conditions, and civilian casualties have snubbed their development. In England the number of births in 1942 was reported to be the highest in a decade and the death rate, which naturally rose during the period of intensive bombings in 1940 and 1941, had receded to prewar levels. Reflecting the course of the war, the position of Greater Germany, including Austria and the Sudetenland, remained favorable up to 1942. Despite mobilization the birth rate was maintained by periodic granting of leaves to the troops. But the effects of the Russian campaign are evident in the decline of births in 1942, producing the sharp drop of natural increase indicated in Table 5. In Italy births have been progressively fewer and deaths progressively more numerous, without spectacular changes. The minor Axis belligerents, with the exception of Finland, have reported relatively normal rates of increase through 1941 and 1942. The Finnish vital statistics for 1939 and 1940, which include military deaths, suggest an aggregate loss of 35 to 40 thousand, or about one per cent, from the population expected at prewar vital rates. Following the peace with Russia the birth rate for 1941 rose above prewar levels, but no recent information on deaths has been made available.

Of the Western countries France and Belgium apparently have suffered most severely. In France the natural decrease already existing before the war was greatly accelerated. In Belgium a low rate of natural increase was replaced by decreases. In both countries the reported figures suggest some improvement of conditions in 1942. The data for the Netherlands indicate rather minor losses for 1940 and 1941, followed by a resumption of prewar natural increase in 1942. No figures are available for Norway since 1940. In that year of invasion natural increase was reportedly not much below that for 1939, because the increase in deaths reported was partially cancelled by an increase in the reported number of births.

It is obvious that conclusions from vital statistics as compiled under war conditions must be made with caution. Though there is as yet no clear evidence of outright falsification or fabrication of published vital statistics for political purposes, there is always the possibility that this has been or will be done. In any event the figures for deaths are biased downward in comparison with peace-

TABLE 5

Rates of Natural Increase per 1,000 Inhabitants in  
European Countries, 1938-1942<sup>1</sup>

Country	1938	1939	1940	1941	1942
Albania	16.7	12.8	14.8	11.4	—
Belgium <sup>2</sup>	2.7	1.5	- 2.7 <sup>3</sup>	- 2.5	- 1.7
Bohemia-Moravia	1.8	1.7	3.3	3.6	4.4
Bulgaria <sup>2</sup>	9.1	8.0	8.8	8.8	9.1
Denmark	7.8	7.8	7.9	8.2	10.8
Estonia	1.7	1.2	- .6	- 4.1	—
Finland	7.9	6.5 <sup>3</sup>	- 2.1 <sup>3</sup>	—	—
France <sup>2</sup>	- .8	- .7	- 4.9	- 4.4	2.5
Germany <sup>2</sup>	7.0	7.9	7.4	6.5	8.1
Hungary <sup>2</sup>	5.7	5.9	5.5	5.5	5.2
Ireland	5.8	4.9	4.9	4.4	8.8
Italy	9.6	10.1	9.8	7.0	6.1
Latvia	4.9	4.6	3.7	3.4	—
Lithuania	10.0	8.8	10.5	—	—
Netherlands	12.0	12.0	10.9 <sup>3</sup>	10.3	11.5
Norway	5.6	5.7	5.6	—	—
Portugal	11.2	10.9	8.8	6.3	7.7
Roumania <sup>2</sup>	10.4	9.7	7.3	6.6	—
Spain	.6	- 1.9	7.8	.9	—
Sweden	3.4	3.3	3.3	4.4	7.8
Switzerland	8.6	8.4	8.1	5.8	7.5
United Kingdom	3.7	3.1	1.0	1.6	4.4

<sup>1</sup> Compiled from: League of Nations. *Statistical Year-Book, 1941/42*, Table 6. Except where otherwise indicated, the data refer to the civilian population only, i.e., do not take account of deaths in the armed forces.

<sup>2</sup> Territories covered are as follows: Belgium, without Eupen and Malmédy; Bulgaria, prewar territory; France, without Alsace-Lorraine from 1939 to 1942; Germany, including Austria, the Sudetenland, Danzig, and Memel; Hungary, territory of 1937; Roumania, prewar area for 1938 and 1939, but without Bessarabia and parts of Bukovina, the Dobrudja, and Transylvania for 1940 and 1941.

<sup>3</sup> Including military as well as civilian deaths.

time figures because through mobilization a part of the population is removed from the possibility of civilian death. Furthermore, the 1943 data are still very fragmentary; the Russian campaign, widespread bombing, and the invasion of Europe undoubtedly have resulted in a less favorable demographic situation among Axis countries than previously prevailed. Finally, there is little information on those countries most seriously affected by the war to date. There are few statistical clues to the situation in Greece, Yugoslavia, the Polish Government-General, and Russia. As in the last war, devastation, food shortages, and civilian massacre in

these areas must have caused a shocking loss of life, to which there is nothing comparable in the remainder of Europe.

Despite the many qualifying factors, it may be tentatively concluded that up to 1943 the war had resulted in less disturbance to vital trends in most countries than during the comparable period of World War I. However, since the basic demographic picture differs from that of a generation ago, the effects of war, even if quantitatively less, may well have more serious social and economic consequences. The wounds of the first World War struck a resilient and rapidly growing population; through high natural increase this population could quickly close over its losses. The present struggle strikes at populations already growing much more slowly than a generation ago, and on the basis of past trends destined to decline. The wounds of the present war will, in a sense, never be healed. In some countries of Western and Northern Europe the total population may never again reach its prewar size. Even in Eastern and Southern Europe war losses comparable to those of World War I will be made up much less rapidly than before, unless there is a marked change in fertility trends. Only in Soviet Russia are vital trends such that the tremendous losses can be absorbed without a serious check on population development. In spite of the estimated loss of 26 million people (including birth deficits) in war and revolution, the Russian population between 1900 and 1940 grew as much as did total Northwestern and Central Europe, which meant for Russia a rate of increase twice as large. The U.S.S.R. may be expected to exhibit similar recuperative powers following the present catastrophe.

Little has been said concerning the effects of war migration. As noted in Chapter II, migration incident to boundary changes and the exchange of populations of the first World War were important sources of population gain or loss in several countries. The migratory movements attending this war have very likely been even greater than those of the last war. In a recent study Kulischer has made a careful and critical evaluation of available information on war migration in each European country up to 1943.<sup>1</sup> His conclusion is that at least 30 million people, or about five per cent

<sup>1</sup> Kulischer, Eugene M. *The Displacement of Population in Europe*. Montreal, International Labour Office. 1943. 171 pp.

of the total population of Europe and the U.S.S.R., have been transplanted owing to the war.

Such a vast displacement of people must have at least temporarily changed the population structure of many European countries. In certain sections the distribution of the population has been greatly altered. But in considering the ultimate effects of such movements it should be recognized that a large share of the migrations thus far has been neither international nor permanent in character. The largest migrations, numerically speaking, have occurred within the prewar boundaries of the countries concerned. Thus the population movements within Poland and the U.S.S.R. are a substantial proportion of the total war migration. Consequently, the change of population size incident to migration has been relatively small. The largest gain of total population has been in Germany, where the net balance of immigration apparently has amounted to 5 per cent of the prewar population. This is the margin of foreign labor recruitments and repatriation of Germans over the movement of Germans outside the Reich as administrative personnel and as evacuees from bombed areas. Most other European countries have lost through migration, chiefly as the result of recruitment for labor in Germany. Losses through migration have ranged from less than one per cent of the prewar population in the Soviet Union to some 4 per cent in France, Poland, and Latvia, 5 per cent in Belgium and the Netherlands, and 8 per cent in Estonia. The predominant factor in international redistribution of population is the increase of Germany at the expense of the rest of Europe.

It seems likely that most of the population gain of Germany, and corresponding losses of other European countries, will not be of a permanent nature. Foreign laborers in Germany, whether civilian or military, will certainly wish to return to their native lands following the war. German supervisory personnel and evacuees will undoubtedly be withdrawn into Germany. Some of the migrations of uprooted Jews and the repatriation of Germans from Italy and Eastern Europe may be permanent. But the numbers involved in these movements are not a large part of the total dislocated population. The permanent residue from existing international population displacement will probably be small compared to its present size.



The ultimate redistribution of population may be much larger and of a more permanent character than that which has already occurred. A general reshuffling of boundaries, combined with attempts to achieve ethnic unity within the revised territories, may permanently change the population structure of much of Europe. Obviously, the extent to which this may or may not occur cannot be predicted in quantitative terms.

### *War and Vital Trends*

The direct effects of war have been considered at some length. Thus far in the present war they have probably been insufficient to change permanently the basic demographic position of the majority of European countries. Whether they will do so in the future can only be a matter for speculation. Perhaps an equally serious challenge to the usefulness of population projections is the possibility that war may upset the underlying demographic trends from which population projections grow. It may be contended that war is so cataclysmic that no resumption of prewar social trends may be assumed. Though no one can safely play the oracle regarding the chaotic conditions of the present time, it is evident that the last war, at least, produced only a temporary disruption of prewar vital trends.

The prewar era from 1900 to 1914 was generally characterized by declining birth and death rates in most European countries. In some countries, notably in Western and Northern Europe, these downward tendencies had existed longer and had progressed further. In some Eastern European countries birth rates had not yet started to decline very much, though death rates were already following a clear downward path.

The war naturally disrupted peace-time trends, not only during the war, but also in the immediate postwar period, when the rebound of births as a result of war postponements and new marriages carried birth rates above those expected on the basis of prewar trends. By 1924, however, birth rates had resumed their decline. Furthermore, they picked up the trend at points very close to what would have been expected had there been no war (Figure 22).

It is apparent that among belligerents as well as neutrals the downward drift of birth rates was only temporarily interrupted by

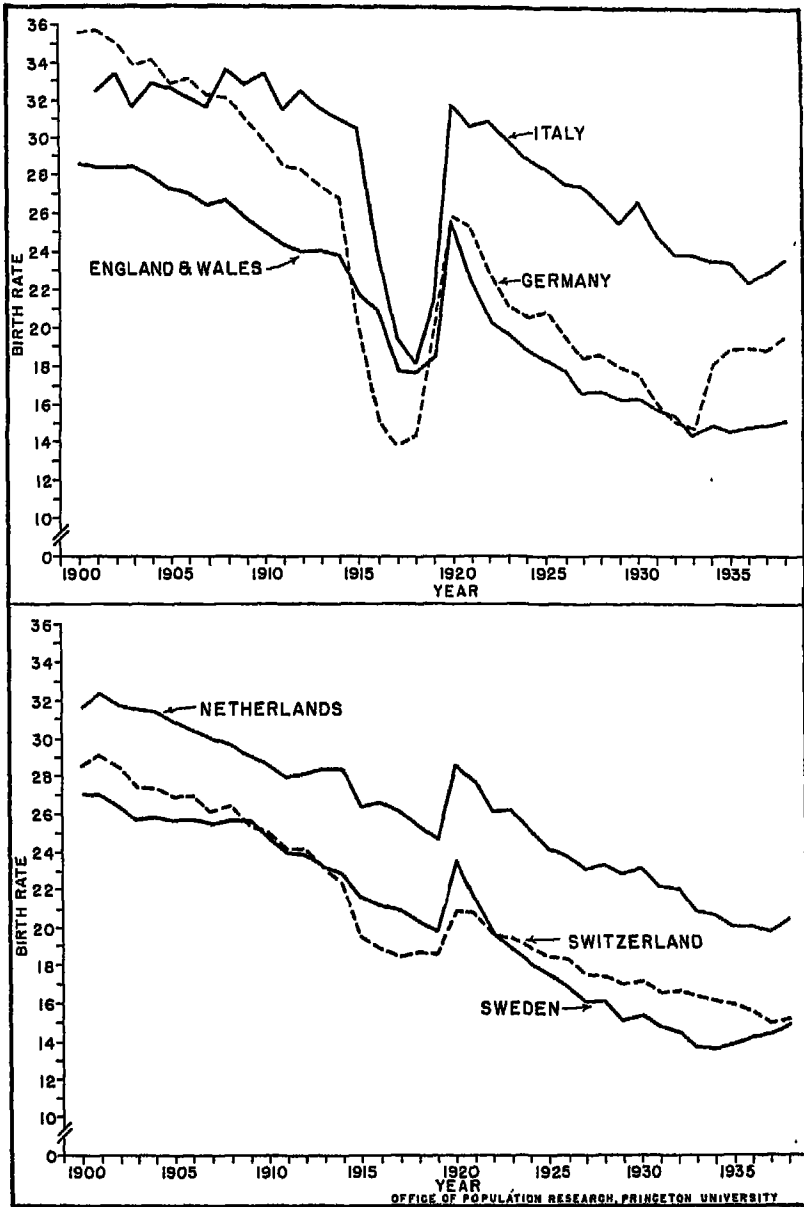


Figure 22. Birth rates in selected countries, 1900-1938.

the war and its immediate after-effects. On the basis of simple extrapolation of prewar trends a prognosticator might have estimated birth rates from 1925 to 1935 within reasonable margins of error. The persistent decline of death rates likewise survived the war and might have been predicted within reasonable limits from prewar tendencies.<sup>1</sup> Because fertility and mortality followed a path indicated by past trends despite the war, population estimates for neutrals made before the last war would have been quite accurate up to 1940, or at least to 1935. If allowances were made for war losses, of births as well as of deaths, estimates would have been reasonably accurate for the belligerents as well. It is true that the check in fertility decline between 1935 and 1940 would have begun to disturb estimates from 1940 on, and in some countries migration would have caused serious error. But over a range of twenty-five to thirty years, estimates of future population in Western Europe made in 1910 by extrapolating past experience in fertility and mortality would have had a great deal of validity, despite the first World War.<sup>2</sup> Though that war left important scars on the population structure of Europe, it failed to alter the fundamental forces of fertility and mortality.

There remains the question of the relative importance of population trends and of war in determining the actual size and structure of the population. If the effects of war overshadow completely the effects of demographic trends, the fact that these trends persist may be of small consequence in estimating future populations. Since the principal shock of war is concentrated within a few years, it is natural that the influence of war should almost obscure basic demographic trends during and just after the conflict. The latter operate more slowly, but also more persistently, so that over a period of years the effects of population trends tend to overtake the influence of war.

The extent to which this occurs is indicated in Table 6, in which are presented (1) the actual populations, (2) those expected without war, and (3) those expected without war or change from the prewar schedules of fertility and mortality, for England and

<sup>1</sup> See Chapter I, p. 25.

<sup>2</sup> Estimates for Eastern Europe would scarcely have been feasible owing to the defectiveness of prewar data, and, if they had been made, they would have been less valid, owing to the amount of migration and losses incident to war.

TABLE 6

Population Deficits as the Result of War and Vital Trends,<sup>1</sup>  
England and Wales and Germany

(In millions)

Country	Date	Actual Popula- tion <sup>2</sup>	Expected Without War	Expected at Prewar Fer- tility and Mortality	War Loss	Deficit as Result of Vital Trends
England and Wales	1911	86.1	—	—	—	—
	1926	89.1	40.1	42.3	1.0	2.2
	1941	41.0	42.1	47.8	1.1	5.7
Germany <sup>3</sup>	1910	58.5	—	—	—	—
	1925	68.2	68.8	72.4	5.6	8.6
	1940	69.5	76.7	88.7	6.2	18.1

<sup>1</sup> Populations without war for 1925 and 1926 were estimated by aging the prewar populations by five-year age groups with life-table values ( $q_x$ ) interpolated from prewar and postwar experience. The expected populations under 10 were estimated from straight line interpolation of ratios of children under 5 to women 20-44 years of age in 1911 and 1931 (England and Wales) and in 1910 and 1938 (Germany), some adjustment upward being made in the ratios for the later years to take account of women unable to marry as a result of war casualties among men at corresponding ages. The expected populations at age 10-14 were based on actual births to April, 1915, which included almost all of the 10-14 group in Germany in 1925 and the major portion of that age in England in 1926, the remainder being estimated from prewar trends. The balance of migration, which otherwise would appear as war loss or gain, was distributed pro rata at each age.

Expected populations in 1940 and 1941 without World War I were obtained by applying the actual fertility and mortality experience to the expected populations in 1925 and 1926 as computed above. The populations expected with no change in prewar fertility and mortality were obtained by aging the prewar populations at each age with the appropriate values from the prewar life tables and entering the expected populations at younger ages from the 1910 (Germany) and 1911 (England and Wales) ratios of children to women. The populations in each age group on these various assumptions are presented graphically for the two countries in Figures 26 and 27.

<sup>2</sup> The "actual" populations for 1940 and 1941 are those without the casualties of the present war.

<sup>3</sup> Territory of 1937.

Wales and for Germany. The population of England and Wales in 1926 was 89.1 million. Without war it would have been approximately a million larger. Without war and with no change from 1911 fertility and mortality it would have been 42.3 million. In other words, even by 1926 the cumulative effect of fertility declines since 1911 had outdistanced the effects of war, the loss from the former being about 2.2 million as compared with a million for the

latter.<sup>1</sup> By 1941 the effect of the war losses, still a little over a million, was small compared to deficits arising from declining birth rates, which, though partially cancelled by lower death rates, nevertheless amounted to some 5.7 million.

Because the total war losses of Germany (including the deficit of births) were much greater than those of England and Wales, the decline in fertility since 1910 was not so great a relative influence. In 1925 the population was about 5.6 million less than might have been expected without war. Fertility declines had resulted in a further reduction of 3.6 million from what would have been the population with no change in the 1910 schedules of fertility and mortality. By 1940 the effects of fertility declines since 1910 amounted to 13.1 million and far overshadowed the continued effects of World War I.

In the case of either England or Germany an estimate of future population made before the war, assuming no change in fertility and mortality, would have missed the actual figure in 1940 by more than twice the margin that would have arisen by assuming the perseverance of prewar trends in vital rates, but ignoring the war. Such evidence as may be derived from the experience of the last war suggests that prewar demographic trends may be expected to survive the war. Over a decade or so these trends may well have a substantially greater influence on numbers than war itself.

### *War and Age Structure*

The demographic effects of war are not fully illustrated by a statement of total numerical losses. The concentration of deaths among males of certain age categories and the sharp reduction of certain cohorts owing to loss of births introduce an effect on the age structure of the population that may be quite as important as total numerical losses. The effect of war on postwar demographic trends is determined as much by the age and sex distribution of losses as by their number.

The effects of the first World War are discernible in the postwar

<sup>1</sup> This figure for war loss differs from that given in Table 8, p. 75, (1) because the methods of computation differ and (2) because the estimate for 1926 takes account of the postwar boom of births in England, which cancelled the greater part of the birth deficit experienced during the war years. Even had the higher figure given in Table 8 been used, the results of fertility decline would have still exceeded total loss of population through war.

age structure of every European country, including neutrals as well as belligerents. This experience is pictured for three typical Western European countries—Sweden, England and Wales, and Germany—in Figures 23, 24, and 25, the outlined area indicating

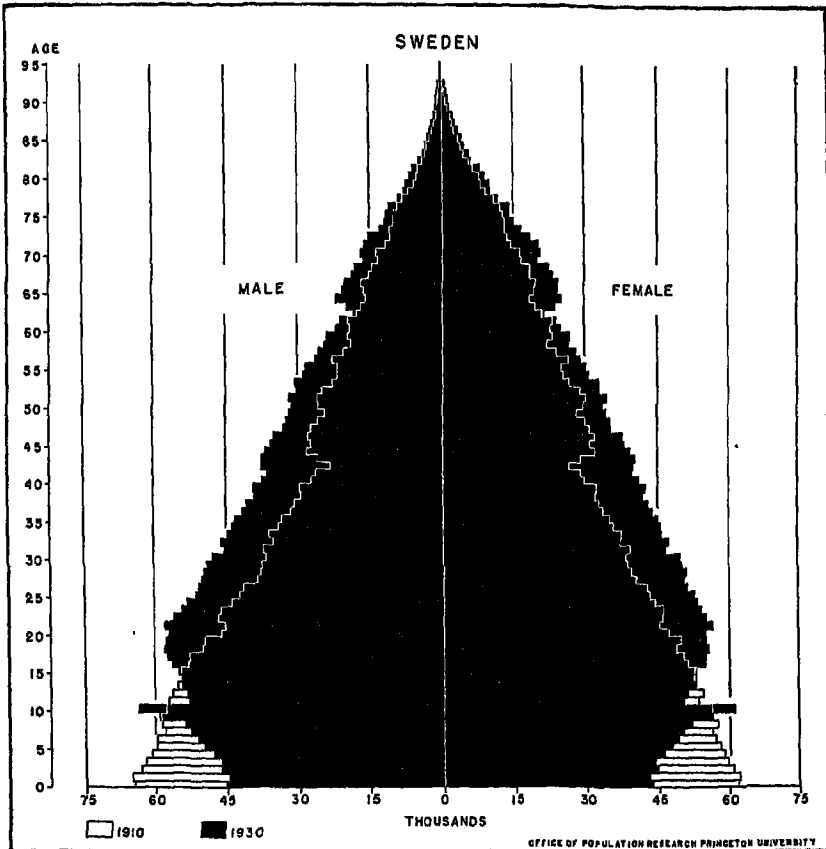


Figure 23. Prewar and postwar age pyramids for Sweden, by single years of age.

the prewar population, the blacked area the postwar population. Shown graphically, the age structures of European countries before the war had the character of a pyramid, with a relatively smooth regression of numbers with increasing age. This was the age structure to be expected in expanding populations in which the orderly reduction of cohorts by ordinary mortality had progressed for many decades.

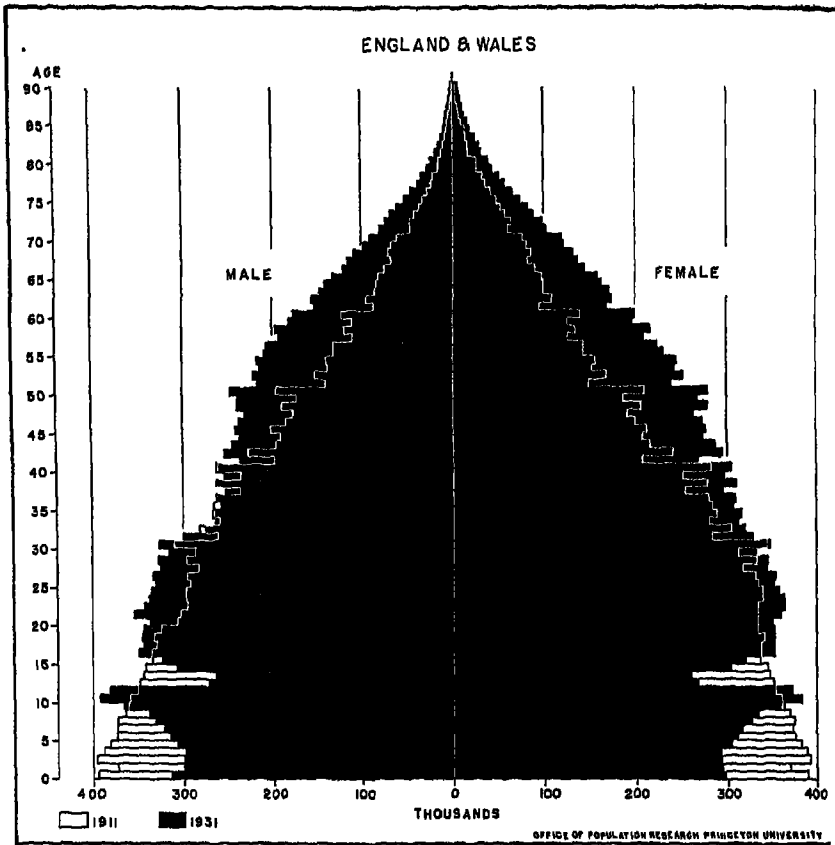


Figure 24. Prewar and postwar age pyramids for England and Wales, by single year of age.

In the postwar period the triangular pyramid was replaced by what might be called the "Christmas tree" shape, reflecting on the one hand the effects of war, and on the other the rapid decline in fertility during the postwar years. In neutral Sweden the effects of declining fertility, indicated by the smaller cohorts in the successive age groups born after 1920, are more impressive than anything else. However, even in Sweden the loss of births during the war is readily apparent in the shorter bars for persons at ages 11-13 in 1930, as well as the rebound in births occurring after the war, reflected in the large number of persons at ages 9 and 10. Among active belligerents, such as England, the loss of births in the war years is even clearer and it is further apparent that the

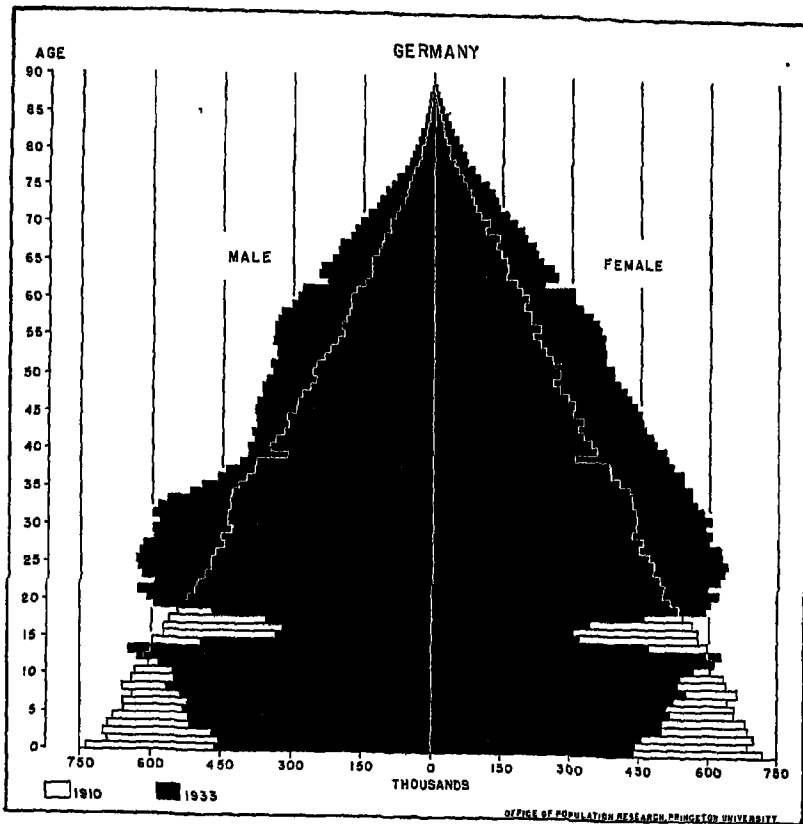


Figure 25. Prewar and postwar age pyramids for Germany, by single years of age.

recovery of births in the first postwar years hardly compensated for the reduction during the war. In England the loss of males of fighting age during the war years is observable in the smaller number of men as compared with women at ages 30-50 in 1931. In Germany, where war losses were even more severe, the military casualties are evidenced in an especially marked indentation at the ages that bore the brunt of the conflict. The sharp bite out of both sides of the age structure at ages 15-17 in 1933 indicates the effects of full military mobilization on the birth rate in the war years. Obviously, this heavy deficit of births was only fractionally balanced by the postwar recovery. The German experience is characteristic of that in France, in Austria-Hungary, and to a lesser degree, in Italy.



A more precise demonstration of the effects of war on population, over a period of time, may be made on the basis of a comparison of the actual age structures of England and Germany in 1925-1926 and 1940-1941 with what might reasonably have been expected in the absence of war. By 1925 the immediate effects of war had all had a chance to work themselves out on the age structure. In particular, the recovery of births, which would have been partially concealed had the English census of 1921 been used, is included in the population composition of the later date.

In Figure 26 the actual populations of Germany in 1925 and of England and Wales in 1926 are compared with those expected without war. The "expected" populations were constructed on the assumption of mortality and fertility interpolated from prewar and postwar levels.<sup>1</sup> The total population of England and Wales in 1926 was about a million smaller than it would have been without war. About four-fifths of this deficit was concentrated in the male population. As a consequence, the sex ratio, which even in the expected population indicated a substantial excess of women,<sup>2</sup> was considerably altered by the war. In 1926 there were only 91.8 men for every 100 women, indicating an excess of women of about ten per cent. The severe impact of war on males in the lower adult ages appears in the large gaps between actual and expected number of males 25-49 (i.e., 15-39 during the war). Of this group more than 9 per cent were lost as a result of the war, while no less than 15 per cent of the males expected at age 30-34 in 1926 had disappeared. This was a serious reduction in the economically most useful section of the population.

<sup>1</sup> For method of computation, see footnote 1 to Table 6. The population structures shown in Figures 26 and 27 may each be thought of as three superimposed pyramids. The actual population, the smallest of the three considered in each case, is indicated by the dotted area. Behind this pyramid is the population expected without the first World War, including the actual population plus deficits attributable to war, the latter indicated in black. The third pyramid, or the population expected at prewar fertility and mortality, is hidden except at the younger ages, because, owing to improvements in mortality, more people have survived to the upper ages than would have been anticipated at prewar death rates. The hatched area at the lower ages thus represents the additional population at these ages, over and above the actual (dotted area) plus the war deficits (black area), that would have accrued from the continuation of prewar fertility.

<sup>2</sup> This was a result of the emigration of men, of their service overseas in the merchant marine or as colonial administrators, and of the differential effects of mortality favoring women.

Though German losses were much greater, they paralleled those suffered by the English. Of the total war deficit of 5.6 million in 1925, about half was attributable to war casualties and excess civilian mortality, over three-fourths of this mortality having been suffered by males and only one-fourth by females. The remaining deficit was the result of the war-time loss of births. As in the case of England, concentration of the losses in the male population produced a heavy surplus of women. Without war the expected ratio of males to females was 98.8 males per 100 females. The actual ratio in 1925 was 93.9. Losses to the female population were rather evenly distributed except for the war-born cohort. As far as mortality is concerned children born during the war fared rather well, for in both England and Germany the infant mortality rate actually declined during the early war years. Undoubtedly, this group of the population was especially favored in food supplies and medical care. Nevertheless, owing to birth deficits, the age group born during the war in Germany stands out as the principal loser of the war. In the absence of war this cohort, male and female alike, would have been at least half again as large as it was.

Military casualties also bore particularly heavily on the German population. Well over a fifth of the expected males aged 30-34 in 1925 had disappeared as a result of war, and the neighboring ages 25-29, 35-39, and 40-44 each had lost more than 10 per cent of the expected numbers. The male population in the most productive ages, namely 20-44, was reduced 13 per cent, or, put another way, there would have been 15 per cent more men in those ages had there been no war.

War has left scars on the population of the belligerents that will disappear only with the death of the cohorts suffering from war losses. In 1940 and 1941, when England and Germany were again bearing the burden of another war, the wounds of the old war were still unhealed (Figure 27). To be sure, the men called upon to fight the last war have passed into middle age, and the loss of the productive capacity through past military casualties is no longer so great as it was. On the other hand, the depleted war-born cohort has reached young adulthood, and is now called upon to fight the present war. Furthermore, each succeeding postwar cohort has been smaller because of the loss of persons in the last war who would have had children if they had lived. This effect of war is, of

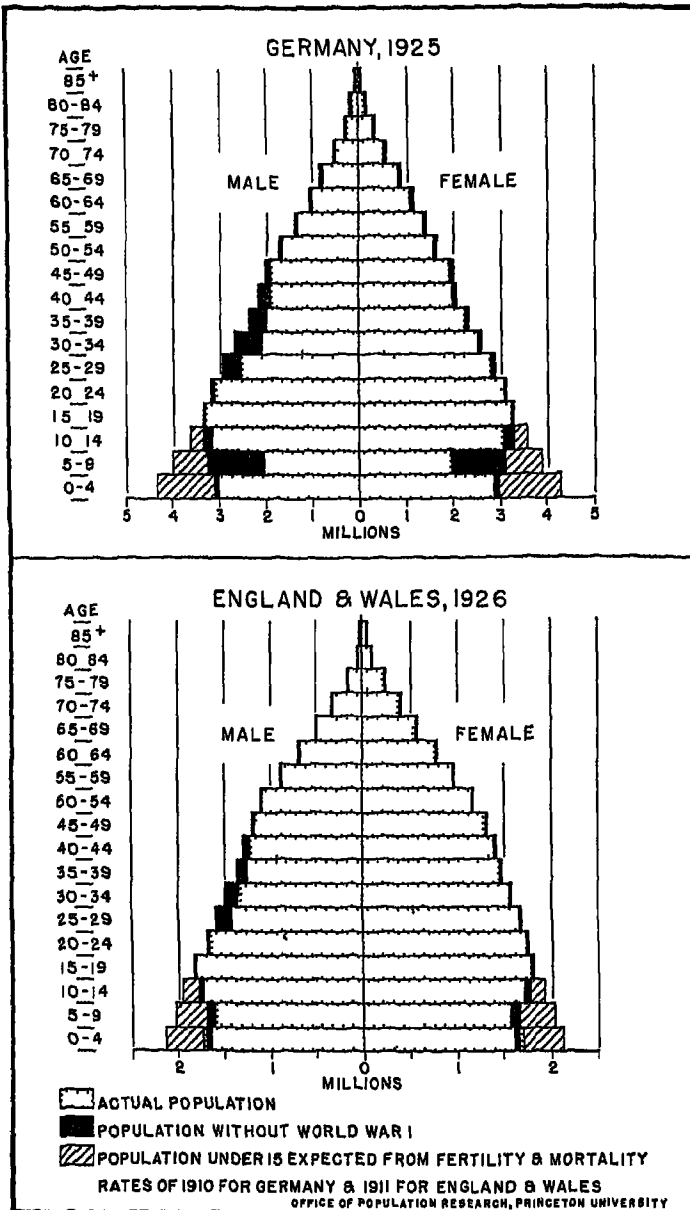


Figure 26. Age pyramids for Germany and England and Wales on various assumptions regarding war and vital trends, 1925 and 1926. (See footnote 1, p. 98.)

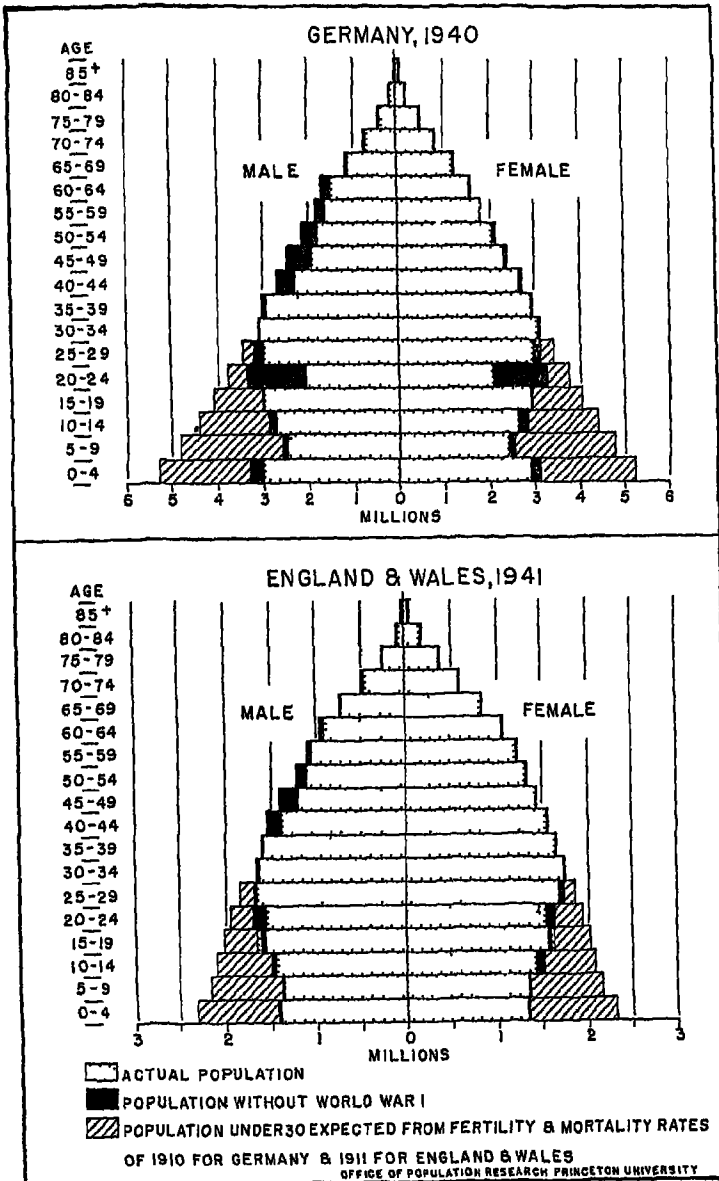


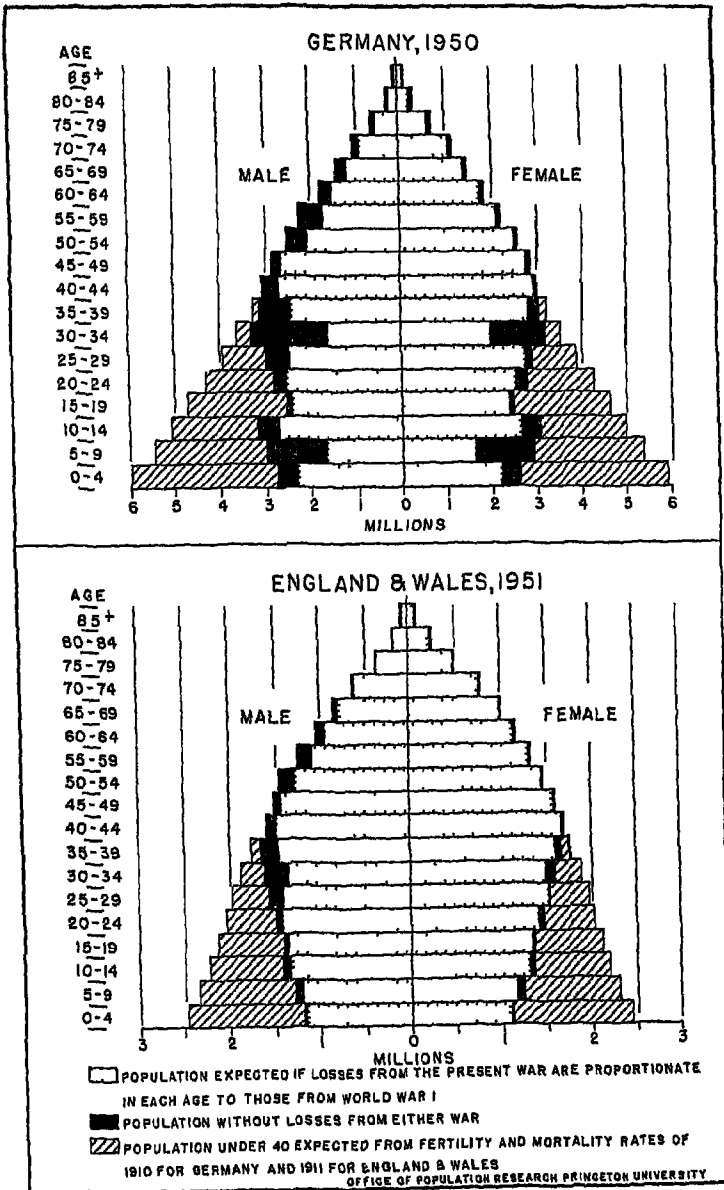
Figure 27. Age pyramids for Germany and England and Wales on various assumptions regarding war and vital trends, 1940 and 1941. (See footnote 1, p. 98.)

course, perpetual. It is particularly significant, however, at the present time, when the unborn of the last war would have reached the ages of highest fertility.

The pyramids in Figures 26 and 27 show not only war losses but deficits at the lower ages arising from fertility declines. As has been shown in Table 6, by 1926 in England and Wales the cumulative influence of fertility declines since 1911 had already equalled the total loss of population through the war. The number of children under 15 in England in 1926 would have been much greater even than the expected number without war if 1911 fertility had been maintained in the following fifteen years.<sup>1</sup>

By 1940 the effects of fertility decline had exceeded the effects of war in both Germany and England. In Figures 26 and 27 the large hatched areas at the younger ages indicate the difference between the population expected without war at actual fertility trends and the population that would have existed at the fertility and mortality of 1910 and 1911. Though the losses due to fertility declines were over twice all war losses in both countries, the error in disregarding these fertility trends would be more serious as regards the structure of the population than as regards its total size. The last war cut deeply into certain age groups and warped the age distribution on the male side, but it did not change the basic form of the population. The populations of Germany and of England in 1940 and 1941 were aging populations with large concentrations in the middle adult groups. Fertility declines, and not primarily war, have produced a tapering off in the lower age groups in sharp contrast with the widening population base that would have existed at 1910 and 1911 fertility. The triangular age pyramid that would have followed from the earlier fertility levels would have meant a much higher proportion of children and young people in the population, a slightly smaller proportion of persons in the middle adult and working ages, and a very much smaller proportion of old people. This fundamental change in the structure of the population may have been accelerated by war but was certainly not determined by it.

<sup>1</sup> The number expected without war was estimated by straight line interpolation between the ratio of children to women in the 1911 and 1931 censuses, the latter raised to take account of the deficit of males in marriageable ages. As has been indicated with regard to birth rates, the postwar decline in fertility was not the result of the war, but a continuation of prewar trends.



*Figure 28* Age pyramids for Germany and England and Wales on various assumptions regarding war and vital trends, 1950 and 1951. (See footnote 1, p 98.)

At a time when the mutilating effects of the last war are beginning to yield to the healing influences of peace-time trends of births and deaths, the people of Europe are faced with the tragic consequences of another conflict. To illustrate the possible impact of the present war on the populations of Germany and England, the age structures of the two countries in 1950 and 1951 are shown in Figure 28: (1) assuming losses at each age proportionate to those of the last war, (2) assuming that neither war had occurred, but with actual fertility and mortality trends, and (3) assuming the continuation of 1910 and 1911 fertility and mortality over the forty-year period.

The structure of the English population in 1951 on either of the first two assumptions displays the rounded contours of a population that has grown rapidly in the past (i.e., up to 1900), and after a transitional period has experienced a persistent decline of births so great that each succeeding cohort is smaller than its predecessor, despite the force of mortality operating to the disadvantage of older groups. The combined losses of two wars, resulting from assuming losses in the present war proportionate to those of the last, are represented by the black areas in Figure 28. Though on these assumptions two wars make serious inroads on the size of the total population, the losses are largely restricted to the male population of fighting age in this and the last war. Their influence is relatively small as compared with the effects of the vital trends since 1911.

The doubling of war losses in the German population of 1950 leads to more spectacular changes than in England. Two weak cohorts, instead of one, stand out in the population; these are the war-born of two conflicts. War casualties, which overlap from the two wars, affect all male cohorts between ages 20 and 75. The combined effects of birth losses in the first war and military casualties in the second eliminate more than half of the expected number of males at age 30-34.

Despite the turbulent fluctuations brought about by war, economic crises, and positive population policies, it is apparent that the German population has the same general form as the English. However, even in the population as unaffected by war losses there is a notable deviation, namely, as the result of Nazi policies to increase births. The assumptions made in Figure 28 assume a de-

cline from the new fertility level achieved by the Nazis in the late 'thirties. Successful continuation of Nazi population policies might broaden the base of the German population structure in 1950. An introduction of pro-natalist policies in England and Wales might also check the trends in that country. But in both countries coming declines in the number of women of young childbearing age will make it increasingly difficult to maintain the existing number of births, and even more difficult to raise them. Furthermore, the temporary influences that contributed so much to the success of the Nazi population policies will probably not be present.<sup>1</sup>

The extent to which changes in birth and death rates have altered the population structure since 1910 and 1911 is evident in a comparison of the pyramids for 1950 and 1951 based on assumptions (1) and (2) with those based on assumption (3). The wide-based, triangular pyramids that would have arisen from a continuation of 1910 or 1911 fertility and mortality rates differ markedly from the others, both in shape and in total size. In both countries they predicate a much younger and much larger population. In England and Wales the population in 1951 is under 40 million, assuming losses in the present war proportionate to those of the last. Without this war and assuming the continuation of past vital trends, it is about 41 million; without the last war, it might have reached 42 million. But with the continuation of 1911 fertility and mortality it would have exceeded 50 million. Of the 10 million difference between this maximum and the population reduced by estimates of losses in the present war, as above, four-fifths may be ascribed to fertility declines, one-fifth to the effects of two wars.

The cost of two wars to Germany may well total over 12 million, disregarding territorial changes and migration. Assuming war losses as great as those in the last war, the German population of 1950 numbers 66 to 67 million in its 1937 area. Without World War II it approximates 72 million; without either war and at actual interwar vital trends, it is 79 million. With the continuation of 1910 vital levels over the forty-year span, the German population would have passed 100 million. The total population deficit as a result of both war and fertility declines since 1910 would thus be something of the order of 35 million, of which over 12 million could

<sup>1</sup> See Chapter I, p. 28.



be attributed to war and the remainder to fertility declines independent of war.

Special attention has been devoted to England and Germany because of their importance and the availability of their statistical data. They are representative of Western Europe in their vital trends and in the past impact of war on their populations. In a sense they are representative of Eastern Europe as well, in that the demographic structure of this area in 1939 resembled that in England and Germany before the last war. War losses of equal magnitude in the East will result in population structures comparable to those in England and Germany after the last war.

### *Conclusion*

The population projections of this study are not valid as predictions of future population, owing to the nature of assumptions involved in their computation and especially owing to the unknown effects of the present war. They represent, rather, the normal unfolding of past population structures and vital trends without regard to war. In the long run these factors outweigh war, but manifestly war will cause sufficient temporary disruption of trends to require considerable adjustment of the projections when its effects become known.

Given the same magnitude of war operations, the present war may be expected to result in a smaller population deficit than occurred in the last war. Great strides in medical care and sanitation have been made in Eastern as well as Western Europe. Control of epidemics will probably be more effective under the same conditions than they were during the last war. To the extent that statistical information is available, this has proved to be the case thus far. In all probability birth deficits will also be quantitatively less, partly because birth rates do not have so far to fall as they did a generation ago.

Counterbalancing these elements is the unknown future course of the war. The military dead may ultimately far exceed those in World War I. Wholesale massacre may cancel the saving of life made possible by advances in public health. The slow death of famine may be a substitute for the quicker deaths of typhus, cholera, and the plague, or a new and even more virulent pandemic of influenza may sweep across Europe. Forced and refugee migration

may permanently change the character of the population in some areas. These factors and their impact on the population can be told only after the war.

The experience of the last war suggests that vital trends may persist through war and become re-established after the peace. There is no reason to suppose that this war will necessarily cause any permanent deviation from the development of past tendencies. It may, however, promote governmental policies and social attitudes conducive to higher birth rates, particularly in countries where fertility is now low. Changes in cultural values influencing birth rates will naturally affect only the number of future births. Since war reduces the population, the projections for age groups already born may be regarded as a maximum. Because these will form the bulk of the population for some years to come, the projections for the populations as a whole may likewise be regarded as high rather than low.

Finally, except in Soviet Russia, this war will strike a population less able to close over the wounds it has suffered, owing to changing vital trends and population structure. The nature and implications of this changing age structure, with and without war, will be the subject of the ensuing chapters.

## CHAPTER IV

### CHANGING AGE STRUCTURES, 1940-1970

CHANGES in total populations are the cumulative result of changes in age groups. Increasing, stationary, and declining populations have their characteristic age profiles. It is the changing age structure, as much as the fact of changing total size, that produces new economic and social problems and solves some old ones. For example, planning for additional persons who will enter the labor market must be based on estimates of the number of youths reaching working age in relation to the number of persons leaving the productive ages through death or retirement. There may be situations in which the number of persons in the productive ages is increasing rapidly at the same time that children entering the public schools are declining. Or, again, the number of men in the total productive ages between 15 and 65 may be rising, while the number of men of military age is falling. Or, still again, the average dependency burden per worker in the productive ages may remain relatively stable, while the dependent aged are increasing rapidly and the dependent children decreasing.

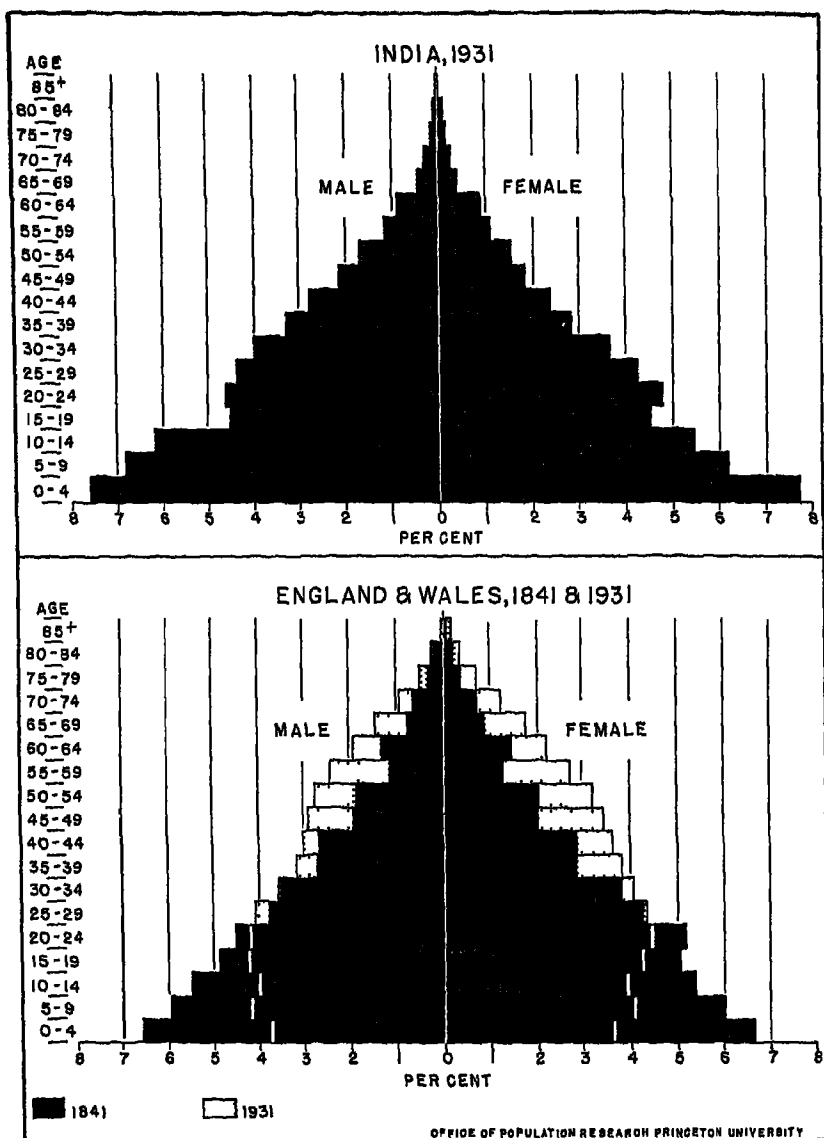
War eliminates the possibility of predicting the actual size of any specific age group in the postwar period. But, in spite of the impossibility of accurate prediction, assumptions regarding postwar changes must be made. They will be more realistic if presented in terms of a systematic frame of reference, even though the specific projections will be modified by events. The nature of war's influence has been indicated in the preceding chapter and will be referred to repeatedly as the analysis proceeds. The other two chief sources of uncertainty are the future role of international migration and the possibility that successful governmental policies may check the postulated decline in births. These possibilities will be considered incidentally in the discussions of age changes, but will be reserved for special consideration in the final chapter in relation to the kinds of policy that might be adopted to avert the consequences inherent in existing trends.

The age composition of a population is the creation of all factors affecting births, deaths, and migration from the birth of the oldest living inhabitant to the present. Catastrophe and progress

alike leave their mark on the ever-changing profile of the population, and the initial results are followed by secondary results that carry to generations after the event. For instance, before the present war there were fewer births in Europe than would have occurred without the first World War, because the small war-born cohorts had entered the reproductive ages. The third generation will be less numerous and in turn will have fewer children for that reason. Thus the age structure indicates the nature, not only of the present rates of fertility and mortality, but of the fertility and mortality schedules that have influenced the population for generations. The age structure of a population is the living record of its biological history.

Age structures are constantly changing as the conditions affecting fertility and mortality alter. The European age pyramids of 1940 reflect various stages in the vital revolution associated with industrialization, urbanization, rising levels of living, and the expanding culture of the West. The downward drift of birth and death rates accompanying these conditions has naturally wrought a characteristic transformation in age composition. To oversimplify somewhat, in the dynamics of changing age distributions there are two terminal stages and a transition period. Populations with high fertility and mortality are young both because of failure to survive and because there is usually some growth. Those with low fertility and mortality are old, because individuals survive longer and because each age class represents the survivors of a larger number of births than the next younger. The transition from the first to the last stage yields large numbers of young adults, who for a time support rapid increase. The situation reverses as this group passes into the older ages. Then their deaths hasten the decline, and the final phase of an old population emerges. Shifting age first delays, then hastens the decline.

The problems created by these developments of the vital revolution are complicated by the fact that different regions are in different stages at the same time. A large part of the world is as yet only in the initial stage. The rapid growth of the Indian population, amounting to 50 million between 1931 and 1941, results from vital processes similar to those operating in England a century earlier. In fact, the age structure of India in 1931 resembled that of England and Wales in 1841 (Figure 29). In each case



Figures 29. Age pyramids for India, 1931, and for England and Wales, 1841 and 1931.

high fertility left large proportions of the total population in the younger ages, while high death rates brought about smaller proportions of older people. In each case the excess of births over deaths was sufficient to produce rapid growth.

In Europe all stages of development are represented, though the effects of the long-time trends in vital rates have been modified by fluctuations resulting from international migrations, economic disturbances, wars, and civil disorders. The age structure of North-western and Central Europe (Figure 30) is obviously that of an area facing incipient population decline, since the younger cohorts are smaller than their predecessors. Southern and Eastern Europe (Figure 31) is an area of rapidly declining fertility, but with an age structure indicating potentialities of growth for some time in the future. The weight of population is much more solidly based on the younger ages. The population of the U.S.S.R. has been more affected by catastrophes than that of any other major region, but the age structure in 1940, interpreted in the light of the economic resources of the country, indicates potentialities for continued population growth.

By 1940 the spread of birth control had resulted in the contraction of the pyramid base for practically every country in Europe. The extent of this contraction obviously depended on the period when fertility began to decline, the rapidity of the decline, and the extent to which it continued through the economic recovery of the latter half of the 'thirties. In general, it began earlier and progressed further in Western and Northern Europe than in Southern and Eastern Europe, but the rapidity of the decline during the last decade was greater in the East. Among the eighteen countries of Northwestern and Central Europe, there were only three (Latvia, the Netherlands, and Germany) in which the population under 5 in 1940 was greater than the population 15 to 19 years of age. In Southern and Eastern Europe, neglecting Albania, where the statistics are of doubtful validity, there was only one country (Bulgaria) in which the number under 5 was less than that 15 to 19.

Regional differences in age distributions are the result of differing rates of fertility and mortality in the past. Hence, the internal and international problems of the coexistence of areas of continuing growth and of incipient decline already existed in the interwar period. The continuing process of demographic evolution likely to

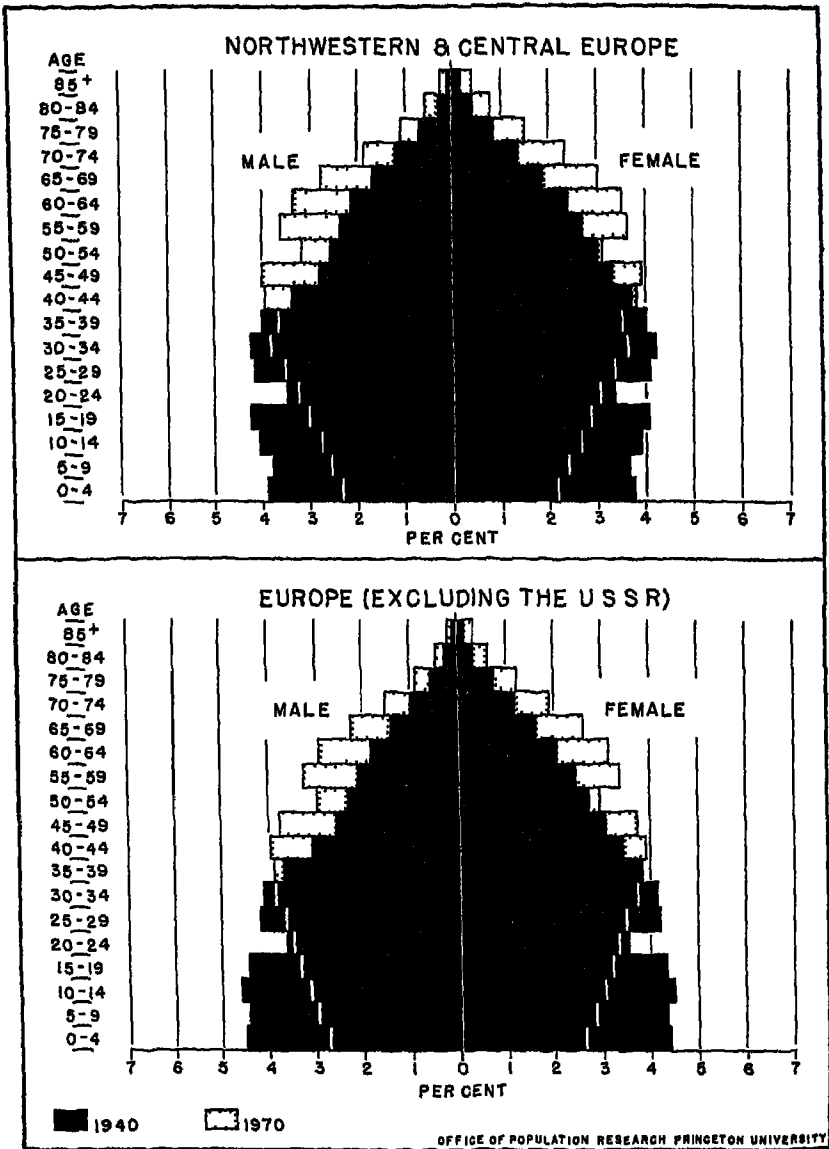


Figure 80. Age pyramids of projected population for Northwestern and Central Europe and for Europe excluding the U.S.S.R., 1940 and 1970.

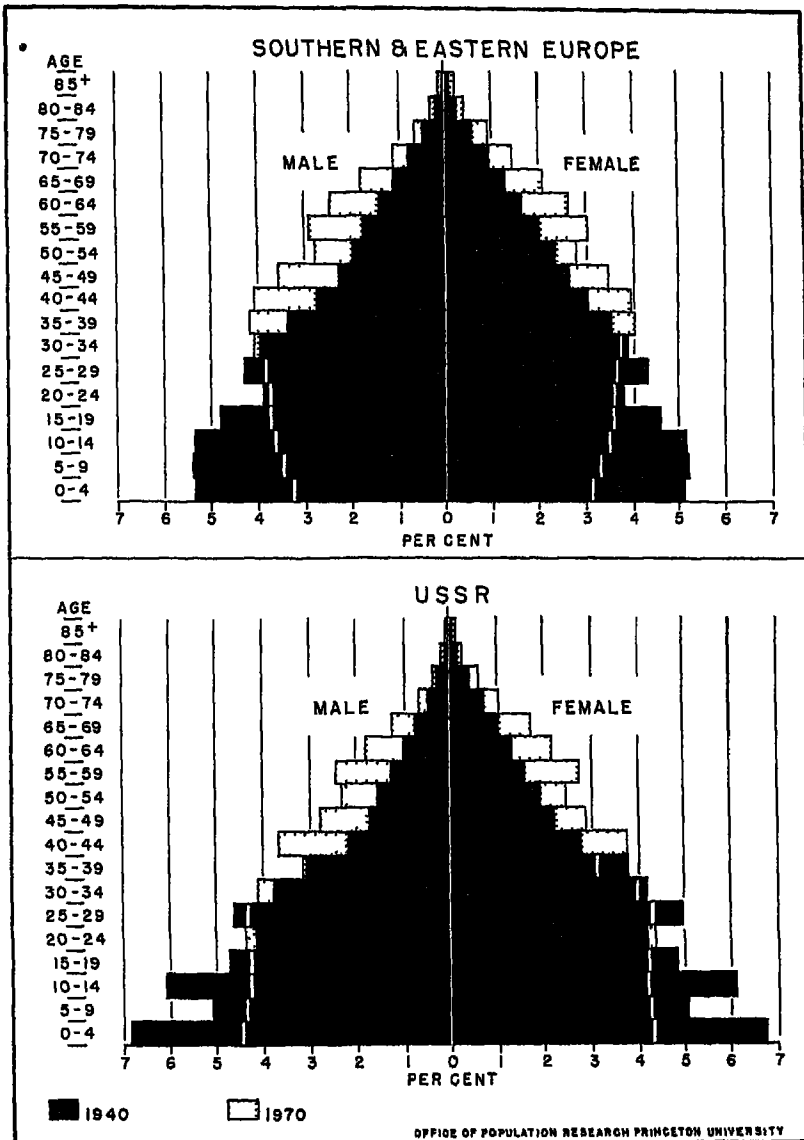


Figure 81. Age pyramids of projected population for Southern and Eastern Europe and for the U.S.S.R., 1940 and 1970.



accompany the restoration of political security and economic progress will render these problems more acute and their solution more difficult.

The age pyramids of 1970 resulting from the projections are superimposed in outline on those of 1940 in Figures 30 and 31. They illustrate the changes implicit in the continuation of past trends. Except in the Soviet Union, the population structure assumes the shape of a Chinese lantern with tapering base and bulging middle. The center of gravity, which today is still solidly based on the younger ages, moves into the middle age groups, to create a population top-heavy with older people.

The general course of development is similar for all regions, although the erosion of the base of the pyramid and the general aging process are most advanced in Northwestern and Central Europe. The age pyramid of Southern and Eastern Europe in 1970 is quite similar to that of the West a generation earlier, indicating the time lag of somewhat less than a generation in the diffusion of controlled fertility eastward across Europe. The age pyramid of the U.S.S.R. in 1940 reveals the great gashes caused by war, civil disorder, famine, and abortion. Aside from these irregularities, however, it is the pyramid of a country barely touched as yet by the vital revolution. By 1970, under the stated assumptions, it would resemble in broad outline the pyramid of Southern and Eastern Europe in 1940.

The nature of these changes is presented from a different point of view in Figure 32. In all areas the change in total population is the combined result of unequal and even opposing changes at the several ages. According to the projections all age groups up to 45 in Northwestern and Central Europe are smaller in 1970 than in 1940. The increase in the upper ages is insufficient to balance this loss, so that the total population declines. Of equal importance is the fact that it ages rapidly. In less advanced form the same transition is observable in the projections for Southern and Eastern Europe. The total population continues to grow because the increase in the ages over twenty exceeds losses of children and young people. In the Soviet Union all age groups except the first increase, but the per cent increase tends to rise with age. The aging process may go on even within the matrix of a rapidly growing population.

Complete analysis of these population projections for each of

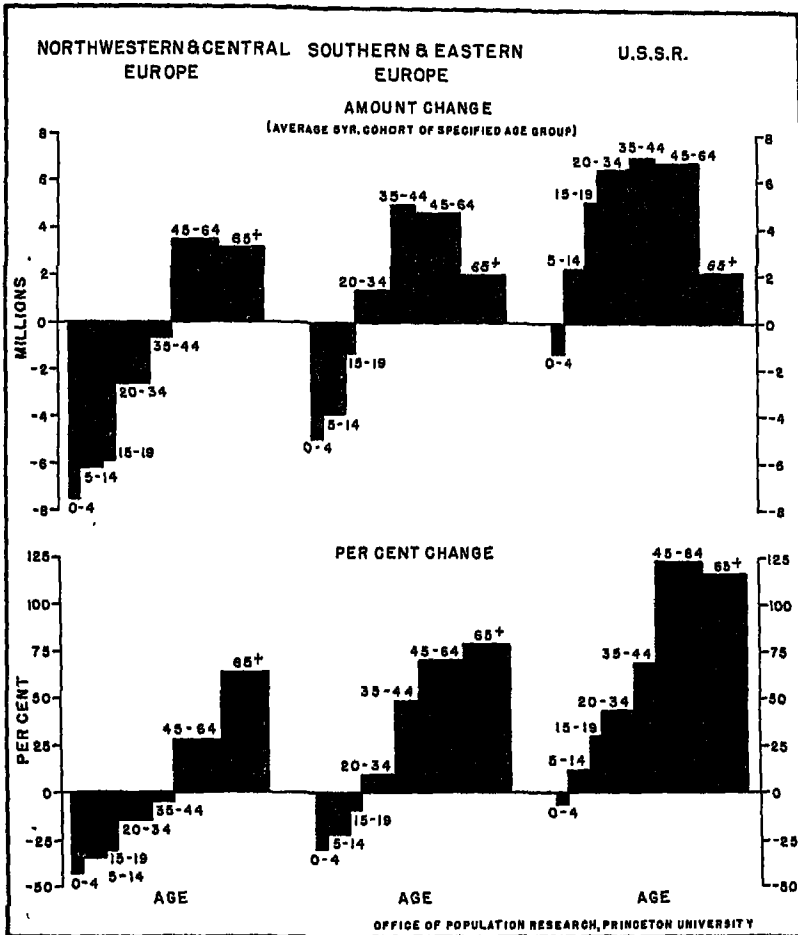


Figure 82. Absolute and per cent change from 1940 to 1970, in the projected population of broad age groups, by major regions.

the twenty-eight nations of Europe seems unnecessary in view of the similarities within regions. Hence the presentation that follows is primarily topical, with emphasis on regional differentials rather than on the characteristics of particular countries. The data for individual countries are available in Appendix IV and the salient features are offered in charts without detailed discussion. Trends in manpower potential are considered first, as the aspect of population trends most immediately significant for postwar planning. Trends in the number of women are considered next, with emphasis

on the reproductive potential of nations and regions. Attention is then turned to the divergent trends in the young and the aged, with consideration both of the total burden of dependency and of the conflict likely to develop in the future between the interests of the aged, representing the past, and those of children, representing the future.

It may be emphasized again that the analysis of age changes that follows does not deal with the inter-regional or internal changes that will actually occur. The intention is to indicate the nature of population problems inherent in the future if the trends of the past continue. It is entirely possible that a widespread understanding of these problems may lead to the adoption of measures intended to prevent the projected trends from becoming the actual trends of the future. If this is the case, then one of the major values of this series of estimates is that they make it possible to differentiate between the types of population problems that are an inevitable heritage from the past, and those that may be averted by migration or by alteration of birth or death rates.

## CHAPTER V

### MANPOWER

THE population changes of most importance to the economic and political situation of Europe during the next few decades will be those of manpower. Manpower, resources, and technology occupy coordinate positions in determining the economic and political potential of nations. At any given stage of development the number of people, especially men, in the productive ages sets the outer limits of economic productivity. The war has amply demonstrated the reality of this limit, which may be no less apparent in the years of reconstruction to come.

#### *Relation of Population in Productive Ages to Labor Force*

The size of the working force may be discussed at any of three levels. The limits of manpower available are set by the total population in the working ages. Within this potential reservoir is the labor force of persons with some usual occupation, a greater or lesser part of which will be unemployed, depending on the stage of the business cycle, efficiency of management, etc. Finally, within the labor force is the group actually employed. The present discussion relates directly to the first level, indirectly to the second, and only in a general way to the third. In the short run, the relation of changes in population of working age to changes in the number of employed persons is obviously a tenuous one, owing to fluctuations in economic activity. In the 1937 area of Germany, for instance, the number of persons employed, according to the definitions of the social insurance system, varied from 11.6 million in January, 1938,<sup>1</sup> to 21.4 million in July, 1939. In the same period there was an increase of around two and a quarter million persons of working age. Only about a fourth of the change could be ascribed to the latter factor. The depression of the 'thirties and the subsequent transition to war economies brought similar changes in the number employed in other industrial countries, and the changes were equally independent of those in the population of working age.

The relationship between population and the total labor force

<sup>1</sup> Including an estimate for the Saar, annexed to Germany in 1935.

is more stable. Comparison of census statistics on gainful workers is hampered by differences in definition, in the time of year at which the census is taken, and in the stage of the business cycle. In the interwar censuses of European countries the proportion of the total population gainfully occupied ranged from 37 per cent for Spain in 1920 to 61 for Latvia in 1935 and 68 for Lithuania in 1928.<sup>1</sup> There was considerable concentration, however; twenty-one of the twenty-seven countries with such information reported between forty and fifty per cent of their total populations gainfully occupied.

The differences in the proportions reported as gainfully occupied are largely the result of variations in the employment of women. They reflect differences in national customs as to the employment of women in agriculture, and in census procedures as to the types of unpaid family labor considered to be gainful employment. Variation in the proportion of men in the labor market occurs primarily in the age groups under 20 and over 65. Within the middle years, from ages 20 to 65, no country in Europe presenting employment by age reported less than 93 per cent of its total male population as gainfully occupied. The highest proportion was 97 per cent, a range of only four per cent. In this group practically all males are in the labor market, whatever the type of economy. Hence, a fairly direct transition may be made from numbers in the working ages to the labor force. For women in all ages, and for men under 20 and over 65, the proportion of potential workers actually utilized depends on the degree of industrialization and the social provisions of alternatives, such as education for youth and pensions for the aged. For this reason, the following discussion of manpower is limited to men from 15 to 65. The group under 20 is included because it furnishes both the entrants to the labor market and to the new military classes. Women in the labor force, and the competition of their economic role with that of homemaking, are discussed in the next chapter. The remainder of the

<sup>1</sup> International Labour Office. *Year-Book of Labour Statistics, 1940*. Fifth year of issue, Geneva, 1940, Table 1, p. 8; and International Labour Office. *International Labour Review* 41(5):549. May, 1940.

The age distribution of the total population will affect the proportion in employable ages and hence may also affect the proportion of the total population actually gainfully occupied. However, standardized proportions presented by the International Labour Office for twelve countries indicate that this was not an important factor producing the observed differences between European countries.

population, children under 15 and persons over 65, is considered in Chapter VII.

*Trends in Total Manpower, 1940-1970*

As might be expected, changes in the working force are similar to those of the total population, but the impact of the declining birth rate on the labor force is naturally delayed. This lag is significant in that, in times of peace, it makes possible more accurate estimates of future changes in the male labor force than in the size of the total population. Almost every person who will be of working age up to fifteen years from now is already born. Consequently, projections of the potential labor force up to 1955 are not subject to errors arising from estimates of future trends in fertility. Since mortality in the ages under consideration is relatively low, even substantial errors in guessing normal mortality would not have a serious effect on the projections. War and migration can, of course, greatly affect the results.

In 1940 there were 127.7 million men in the working ages in Europe west of the Soviet frontier. Under the stated assumptions of declining mortality, with no account taken of war losses and international migration, there is a net increase of 20 million by 1970 (Table 7). The increase between 1940 and 1955 is 17 million, or 13 per cent of the 1940 figure; but between 1955 and 1970 the net rise amounts to only 2.9 million, or 2 per cent of the 1955 total. Decline in manpower for the continent sets in after 1965.

About nine-tenths of the net increase to 1970 for the continent outside the U.S.S.R. occurs in Southern and Eastern Europe, only one-tenth in Northwestern and Central Europe. Up to 1955, Northwestern and Central Europe gains 5 million, as compared with 12 million in the South and East. After 1955 the West loses 3 million, while the East continues to gain, but with only half the increase of the previous period.

Manpower projected for 1940 and for 1970 in the individual countries is shown in Figure 33. The relative position of countries within the Western region remains substantially unchanged. Some countries gain slightly, while others lose, but the relationship between them remains about the same. In Southern and Eastern Europe the position of the countries within the region likewise remains stable but with a rapidly expanding reservoir of man-

TABLE 7

Number of Men Aged 15-64 by Regions:  
1940, 1955, and 1970

Region	Number (millions)			Change					
				1940-1955		1955-1970		1940-1970	
	1940	1955	1970	Amount (millions)	Per Cent	Amount (millions)	Per Cent	Amount (millions)	Per Cent
Europe (exc. the U.S.S.R.)	127.7	144.8	147.6	17.0	13.3	2.9	2.0	19.9	15.6
Northwestern and Central	77.4	82.3	79.8	4.9	6.4	-2.8	-3.4	2.1	2.7
United Kingdom and Ireland	16.7	17.3	16.6	.6	3.7	-.7	-4.0	-.1	-.4
Northern	6.7	7.2	7.0	.5	7.0	-.2	-3.1	.3	3.7
West-Central	54.0	57.8	55.9	3.9	7.1	-1.9	-3.3	1.9	3.6
Southern and Eastern	50.4	62.4	68.1	12.1	24.0	5.7	9.1	17.8	35.3
Southern	28.9	28.8	30.9	4.9	20.4	2.0	7.1	6.9	23.9
Eastern	26.4	33.6	37.2	7.2	27.2	3.6	10.9	10.8	41.0
U.S.S.R.	49.0	66.8	84.1	17.8	36.3	17.8	25.9	35.1	71.6

power in every country. The significant modifications occurring in the distribution of manpower in Europe are regional rather than national. Between 1940 and 1970 the two countries with the largest absolute declines are France and the United Kingdom, each losing half a million men, but in each case out of a total male working force of over 13 million. In contrast to these losses, the Netherlands gains three-quarters of a million and Germany gains 1.4 million. But these are the extreme cases in the Northwestern and Central region. Germany's gain is the product of her large population and of her pro-natalist policies under the Nazi regime. It is dwarfed by the increase of the principal nations of Southern and Eastern Europe. No less than five countries of this region, Spain, Yugoslavia, Roumania, Italy, and Poland, individually have about as large or a larger increase of manpower than all of the countries of Northwestern and Central Europe combined. In Spain and Yugoslavia the increment of manpower in a generation is over 2 million and in Roumania it is 2.9 million. Italian and Polish manpower each increases 4 million. The manpower potential of the Soviet Union stands in contrast even to that of Eastern Europe. Continu-

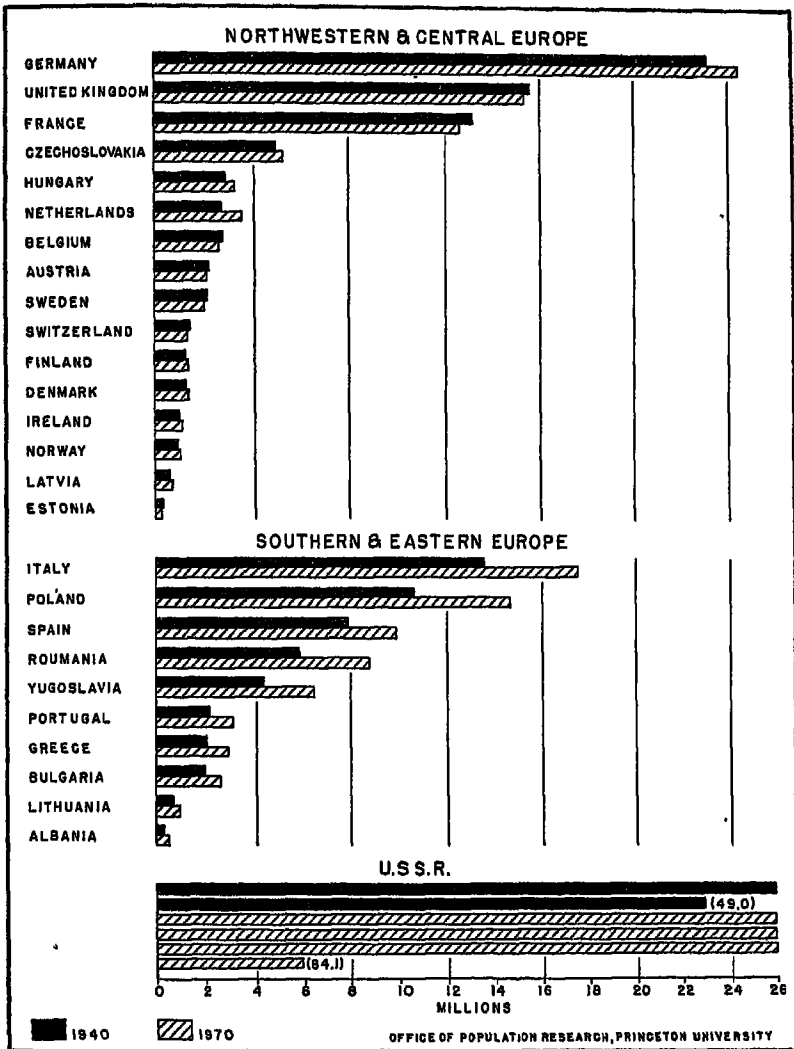


Figure 83. Number of males in productive ages, 15-64, by country, as projected for 1940 and 1970.

ation of the interwar trends results in an increase of 20 million west of the Soviet Union. On the same assumptions there is an increase of 35 million in the U.S.S.R. alone.

The changes indicated for the next thirty years, ignoring the effects of war, mask the significant divergence in the outlook for



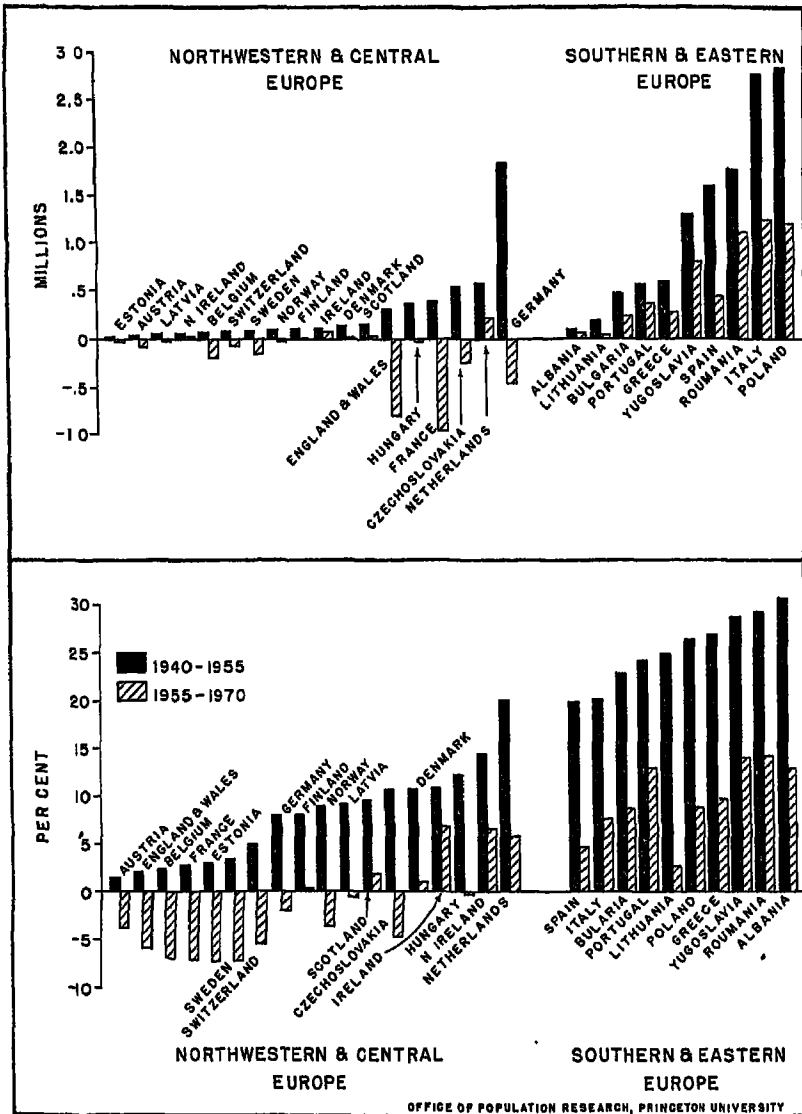


Figure 34. Absolute and per cent change in male population in the productive ages, 15-64, for countries of Europe, as projected 1940-1955 and 1955-1970.

the immediate future and in that for the period between 1955 and 1970. As may be observed in Figure 34, no country in Europe sustains loss to its worker force before 1955; but a large majority of the countries of Northwestern and Central Europe have less

manpower in 1970 than in 1955. In the West, only the Netherlands and Ireland show a significant growth during this period. Every country in the South and East has at least a 20 per cent increase in its labor force by 1955; between 1955 and 1970 all still increase, but none so much as 15 per cent (Figure 34, lower panel). Southern and Eastern Europe have much the same order of proportionate expansion in manpower in 1955 to 1970 as the Western countries experience between 1940 and 1955. In the Soviet Union, which is not included in Figure 34, the per cent increase drops from 36 in 1940-1955 to 26 in 1955-1970. However, by contrast with the other countries, the absolute increase scarcely changes. It is 18 million in the first period and 17 million in the second.

These changes in total manpower are roughly equivalent to the changes that may be expected in the male labor force apart from war losses and migration. A more sensitive index of such changes, and one more immediately relevant to the problems of a functioning economy, is the ratio of men entering the productive ages to those leaving through death or retirement. This index is presented for three periods in Figures 35-37, 100 indicating that the number of entrants equals that of departures. Because the labor force is still growing, there are more entrants than departures in all European countries in 1940-1945. However, the ratio ranges from 115 in industrialized Belgium and England and Wales to over 200 in the peasant countries of Eastern Europe, and to 275 in the U.S.S.R. In the West there is now relatively little expansion of the potential male labor force. In the East two men enter for every man leaving. In Soviet Russia the proportion is more nearly three to one. Obviously, a non-expanding economy is progressively less adapted to the needs of the demographic situation as one moves eastward.

Because of the past and projected future declines in fertility under the assumptions made, the ratio of entrants to departures falls in Europe and all its parts during the next generation. By 1955-1960 several countries have fewer persons entering than leaving the labor force and the pressure on job opportunities from demographic factors, other things being equal, should very noticeably slacken in Eastern Europe. Only in the Soviet Union in this period does the ratio still exceed 200. By 1965-1970 the situation in the West is strikingly different from that encountered in any

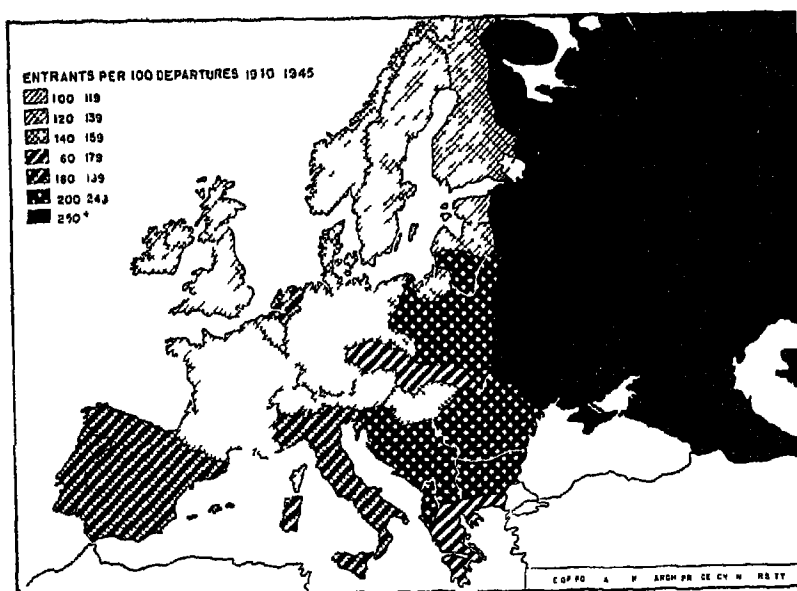


Figure 35 Male entrants to the productive ages, 15-64, per 100 departures, as projected for the period 1940-1945

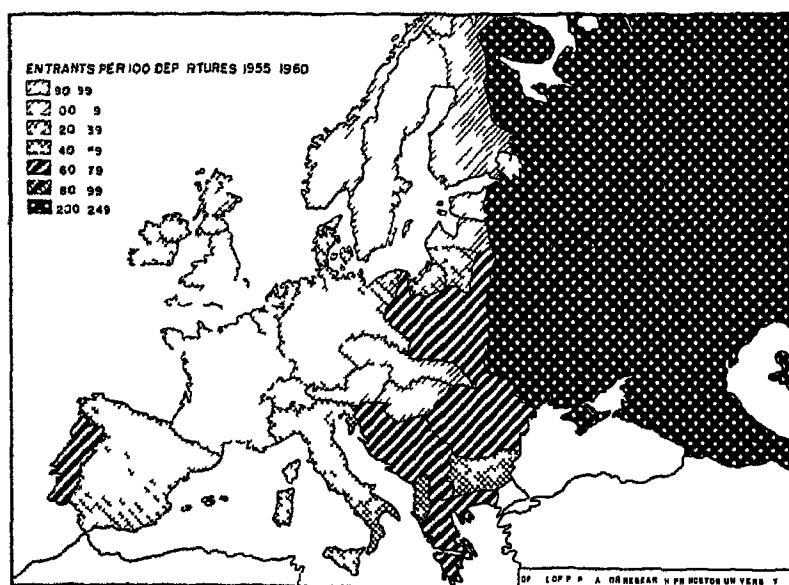


Figure 36 Male entrants to the productive ages, 15-64, per 100 departures, as projected for the period 1955-1960

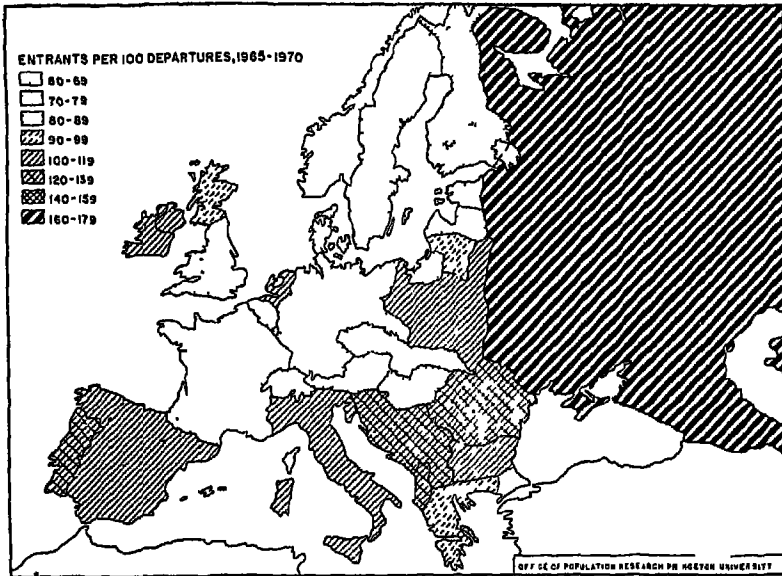


Figure 87. Male entrants to the productive ages, 15-64, per 100 departures, as projected for the period 1965-1970.

previous period of modern history. In England and Wales, for instance, there are only two claimants for every three jobs made vacant by death or retirement. In the West as a whole the ratio is 74, or three claimants for every four places vacated. In the East the relationship for 1965-1970 is much as it is in the West today, with similar future prospects. By that time only in the U.S.S.R. would purely demographic causes still produce a serious problem of providing job opportunities for new workers.

### *Changes Within the Male Labor Force*

It is evident that changes in manpower as a whole do not tell the entire story of demographic changes affecting economic and military potential. The primary labor force of males 15-64 is itself a mixed group of younger and older workers with different potentialities for service in the economy. Hence, for purposes of discussion this fifty-year span has been divided into four functional groups: 15-19, 20-34, 35-44, and 45-64. Youths 15-19 furnish military conscripts and the vast majority of entrants to the labor market, although the extent to which they actually are a part of

the labor force depends on the customs of the country concerned. In most European countries two-thirds or more are gainfully occupied, and less than a third are still in school. Men aged 20-34 constitute the young workers in peace and the bulk of the army in war. They, together with men aged 35-44, are the group of maximum productivity in those occupations requiring speed and physical stamina. Men aged 45-64, the older workers, are less useful in such occupations but are important in those positions for which long training and experience are of consequence.

The projected changes in the number of men at each of these age groups are shown for the three major regions in Figure 38.

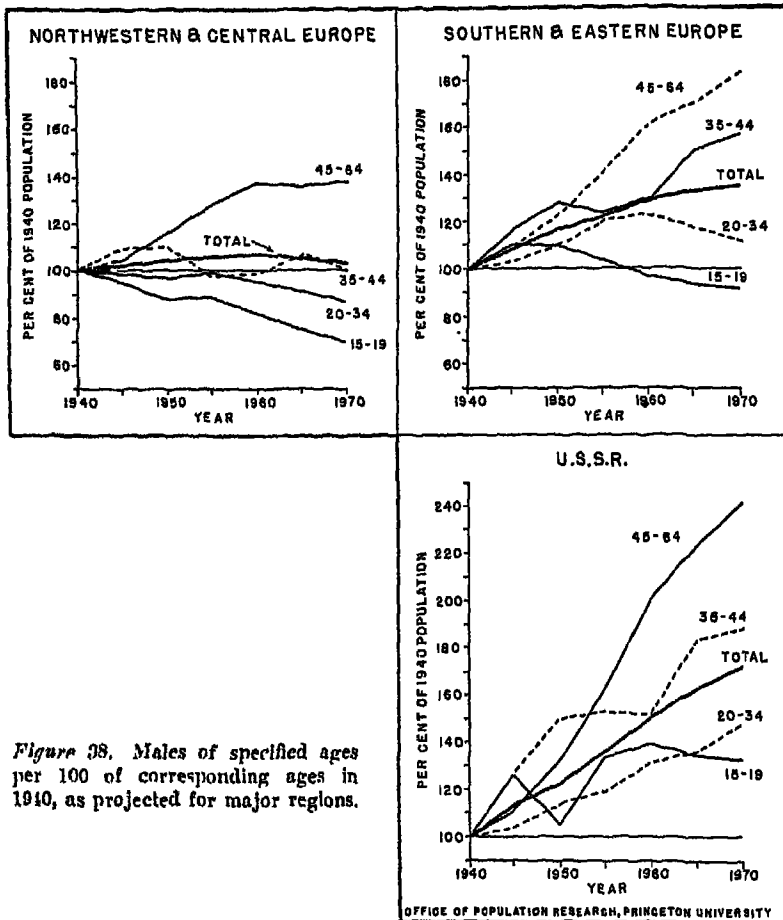


Figure 38. Males of specified ages per 100 of corresponding ages in 1940, as projected for major regions.

Owing to actual fertility declines between 1925 and 1940, and those projected up to 1955, the number of youths entering the labor force in Europe west of the Soviet Union progressively shrinks. In Northwestern and Central Europe the maximum number has already been passed and there is a steady downward trend, broken only by a slight upturn in 1955. This reversal arises from the increase of births associated with economic recovery in the industrial countries between 1935 and 1940, supplemented in Germany by pro-natalist policies. Southern and Eastern Europe reaches its greatest number of men 15-19 about 1945 and then parallels the West in its decline. In Soviet Russia this age group rises rapidly until 1945, and then falls sharply by 1950 as the result of the loss of births in the years of the collectivization program and the official provision for abortion. After a recovery in 1955, entrants to the Russian labor force remain relatively stable, despite the fact that they are the survivors of cohorts projected on the assumption of rapidly declining fertility.

Because the number of men 20-34 reflects birth trends of an earlier period, it does not commence to decline so soon or so rapidly as the number of youths entering the labor force. In Northwestern and Central Europe, where the decline of the birth rate was far advanced even before the last war, the number of young workers has already passed its peak. Since 1935 and up to 1950 this age group is depressed by the birth deficits of the last war. A new sharp drop in numbers commences after 1955 in Northwestern and Central Europe. The same decline starts after 1960 in the Southern and Eastern region. However, in 1960 there are 23 per cent more men in the young worker group than at the present time. In the U.S.S.R. there is an unchecked rise to a cumulative 48 per cent increase by 1970.

The age group 35-44 is the youngest section of the European labor force to show a net gain in projected numbers over the span of the next generation. Its increase of 22 per cent is the net result of a negligible increase of less than one per cent in the Northwestern and Central region and a rise of 57 per cent in the South and East. The delayed effects of war are illustrated by the low figures for men of this age in 1955 and 1960, when the small cohorts of persons born during World War I are passing through this age

class. Only in neutral countries is there a regular progression of slowing growth followed by decline.

Men now in the older working force, aged 45-64, are survivors of births in the last century. Even in 1970 they are the survivors of births of 1925 or earlier. They carry into the modern world the demographic heritage of a past period of rapid population growth, when each succeeding cohort was much larger than its predecessor. Their numbers will experience an increase paralleling the rapid growth of population in the period in which they were born. In every European country the supply of older workers rises up to 1960, and to 1970 in all except a few of the Western countries hardest hit by the birth deficits of the first World War. In all areas the rise in the period is large, but, as might be expected, there is a much greater proportionate gain in the East. By 1970, men 45-64 exceed the number in 1940 by 38 per cent in Northwestern and Central Europe, 83 per cent in Eastern and Southern Europe, and 141 per cent in the U.S.S.R. Because there already was a large supply of older workers in the West, the absolute changes are not so varied: 9 million in the Northwestern and Central region, 10 million in the South and East, and 14 million in the Soviet Union.

### *The Aging Labor Force*

Rapid increases in the number of older workers and slow increases or declines in the number of young workers will result in an older and aging labor force. This shift in age composition may prove quite as significant as the changes in absolute size of the total labor force or of its component age groups, outlined above. The change is shown for the three major regions in Figure 39. It has been stated that, from a demographic point of view, to go eastward in Europe is to go backward in time. In a similar way, the incidence of aging is a problem of chronology. Past trends in births have already set the varied pattern of basic age structures for the labor force of the next decades. War losses, falling more heavily on some groups than on others, will alter the structure somewhat. Particular age groups of individual countries may gain or lose through migration. But for Europe as a whole, there is no reasonable chance of escape. The labor force will become older and the trend will move from west to east across the continent. War can only accelerate the process.

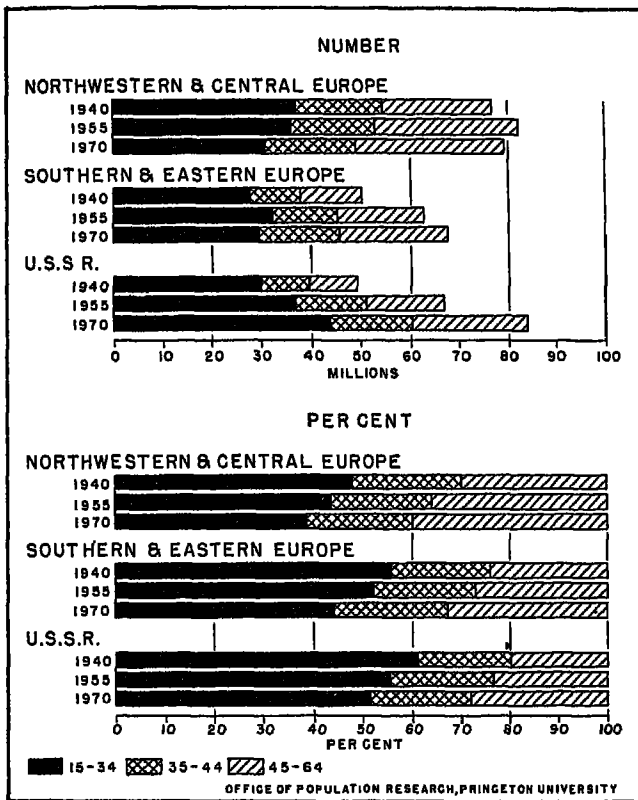


Figure 89. Age distribution of males in the productive ages, 15-64, by major regions, as projected for 1940, 1955, and 1970.

In 1940, Europe still had a relatively young labor force. In Northwestern and Central Europe the proportion of young males (15-34) in the group of working age was 48 per cent, ranging from 44 in Belgium to 53 in Norway. In Southern and Eastern Europe it was considerably higher, 56 per cent, because of the high birth and death rates of the past. In the Soviet Union 61 per cent of the males of working age were under 35. By 1970, the proportions decline to 39, 44, and 51 per cent, respectively. The proportions 35-44 remain relatively constant. Those of the group 45-64 increase rapidly, rising from 30 to 40 per cent in the Northwestern and Central region, from 24 to 33 per cent in the South and East, and from 20 to 28 per cent in the Soviet Union. Every country shares the trend toward an aging labor force.



This aging process will raise serious problems of economic adjustment in Europe, problems that will differ with the nature of the economy and stage of demographic evolution. They may be suggested here only in their more obvious relations to worker efficiency and economic flexibility.

In the essentially agrarian economies of Southern and Eastern Europe, the aging of the labor force, as such, is probably less important than in highly industrial regions. Agriculture is an industry in which worker efficiency is well retained with age. The primary problem is that of finding opportunities for the efficient employment of expanding numbers in a region where there is already a heavy pressure of population on agricultural resources. Partial employment, fragmented holdings, and the use of inferior lands and tools have long given clear evidence of that pressure. It greatly complicates the problem of absorbing new workers. It is true that declining proportions of young workers foreshadow the time, some decades off, when the pressure will cease to mount. However, the eventual end of growth should not detract attention from the essential fact that the labor force will increase rapidly in the next few decades in this area of limited agricultural resources.

In industrial areas the effect of aging on worker efficiency is more complex. Men under 35 are at a period of maximum physical vitality and, in perhaps the majority of occupations, of maximum productivity. In general, mass production industries have sought young workers and have been reluctant to recruit older ones. They will have to do so increasingly in the future. A smaller proportion of young workers available for jobs requiring speed and stamina may mean a less efficient labor force. However, it would be easy to exaggerate the effects of age changes on peace-time industrial efficiency. The experience and dependability of older workers compensate in considerable measure for their loss of youth. Productivity is as much a function of training and experience as of vigor. It is certainly even more dependent on technological developments. In the economy as a whole it is more closely related to the amount of unemployment and unused industrial capacity than to the age distribution of workers.

The aging of the labor force may well have more effect on the flexibility of the economic system than on specific worker productivity. In all economies, young workers are the most fluid section

of the labor force. In industrial regions they are the first to move to areas of expansion. In agricultural districts their adaptability and absence of fixed ties make it possible for them to choose migration to the cities as an alternative to overcrowding the land. They are the safety valve of the otherwise tight peasant economy. When agrarian population pressure is not offset by opportunities in industry and commerce within the country, it is the young workers who emigrate. To the extent that migration has relieved some economic tensions and brought about some equalization in economic opportunity both within and beyond national frontiers, it has been chiefly the result of movement in this most mobile section of the labor force. Declining proportions of young workers will reduce somewhat both the incentive to migrate and the readiness to respond to such incentives.

Quite as important as geographic mobility is the occupational adaptability of young workers. They adjust more quickly than older workers to changing job requirements; hence they are less liable to unemployment incident to technological change. Having fewer ties of family and property, they are more easily attracted to new and speculative opportunities. In general, an expanding population can meet changing needs for skills by deflecting the stream of young workers. In a stationary or declining population these changing needs must be met to a large extent by retraining old workers. A loss of flexibility is involved.

Relative scarcity of young workers will probably make it easier to start work but more difficult to advance. Since the occupational hierarchy is also to a large extent an age hierarchy, the fewer the older people in relation to the young, the better the opportunities at the top. In that sense, growing populations favor individual advancement and declining ones retard it. With reduced opportunities to rise from the lower ranks, one would expect worker solidarity to increase and to be accompanied by growing pressure for promotion by seniority. In general an aging labor force should tend to substitute order for flexibility and, perhaps, group responsibility for individual initiative.

### *Regional Changes in Manpower Potential*

Rapid changes in the distribution of manpower as among the major regions will result from differences in the rates of growth

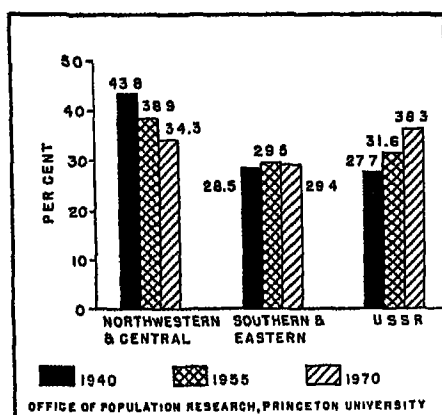


Figure 40. Regional distribution of males in the productive ages, 15-64, as projected for 1940, 1955, and 1970.

already discussed. The changes projected may be seen in Figure 40 for men 15-64 years of age. The situation is similar to that of the total population: rapidly declining proportions of manpower in Northwestern and Central Europe, slightly rising proportions in the South and East, and a rapidly increasing proportion in the Soviet Union.

When consideration is confined to the men of prime military age, the eastward movement of weight of manpower is even greater. At the beginning of a conflict, most of the fighting in modern warfare is done by men between 15 and 35. As noted in Chapter III, losses are heavily concentrated in this group because older men are used only when manpower resources run low. As may be observed in Figure 41, every country in Northwestern and Central Europe has fewer men 15-34 in 1970 than in 1940. Of the Southern countries only Portugal has a larger number at the end of the thirty-year period. Of the Eastern European countries only Lithuania shows a decrease, though all except Russia decline between 1955 and 1970. Greece, Roumania, and Yugoslavia have a 20 per cent or more increase in military manpower; the U.S.S.R., a 44 per cent increase. The gain of men 15-34 in the U.S.S.R. is over 13 million as compared with a loss of almost 5 million in Europe west of the Soviet Union. This gain alone is larger than the 1940 manpower of Germany, the Soviet Union's closest rival in Europe.

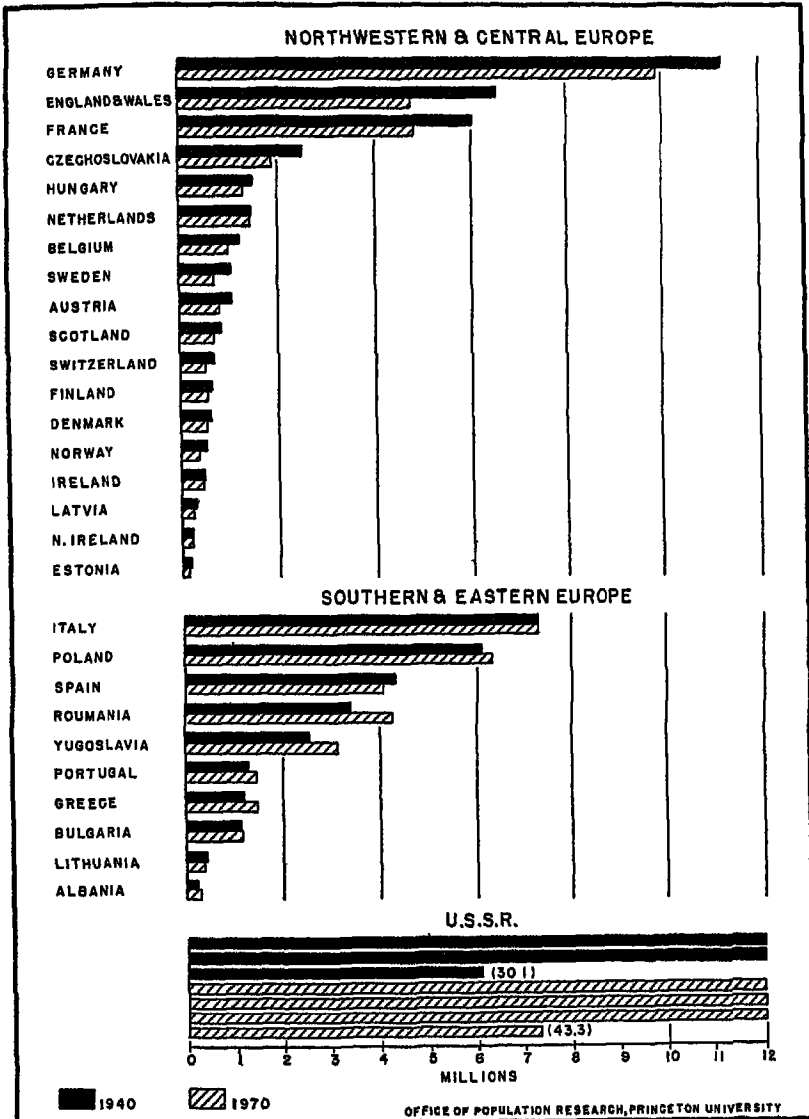


Figure 41. Number of men in prime military ages, 15-84, by country, as projected for 1940 and 1970.

TABLE 8

Rank Order and Number of Men 15-34 Years of Age in 1921,  
and as Projected for 1940, 1955, and 1970, for the  
Ten Most Populous Countries of Europe  
(In millions)

	1921		1940		1955		1970	
U.S.S.R.	1	24.6 <sup>1</sup>	1	80.1	1	86.9	1	48.8
Germany	2	11.1 <sup>2</sup>	2	11.3	2	10.9	2	9.9
United Kingdom	3	6.7	3	7.6	3	6.9	5	5.7
Italy	4	6.1	4	7.4	4	8.2	3	7.4
France	5	5.6	6	6.0	6	6.1	6	4.8
Poland	6	4.5	5	6.1	5	7.0	4	6.8
Spain	7	3.5 <sup>3</sup>	7	4.3	7	4.8	8	4.1
Roumania	8	3.1 <sup>4</sup>	8	3.4	8	4.3	7	4.2
Czechoslovakia	9	2.2	9	2.6	10	2.5	10	1.9
Yugoslavia	10	1.8	10	2.6	9	3.3	9	3.2

<sup>1</sup> 1926.<sup>2</sup> 1923.<sup>3</sup> 1920.<sup>4</sup> 1930.

The changing relationships between major countries presented in Table 8 reflect regional differences rather than random differential trends. Russia, which two centuries ago probably did not have a much larger manpower potential than France, before the last war had already achieved an overwhelmingly predominant position in Europe as regards sheer numbers. Interwar trends and almost inevitable future developments will further strengthen this position. By 1970 the U.S.S.R., in its 1937 boundaries, has as large a source of primary military manpower as Germany, the United Kingdom, Italy, France, Poland, Spain, and Roumania combined, these being the seven European countries with the greatest forces of manpower outside of the Soviet Union.

In Europe west of the U.S.S.R., Germany has had the largest military manpower since 1871. This position would not be altered by 1970 if the projections were realized and if Germany were maintained with anything approximating the 1937 boundaries. Germany's predominance among Western countries is somewhat increased in the thirty-year period; her position vis-à-vis the East deteriorates rapidly. On the projections the momentum of rapid growth carries Italy and Poland ahead of both France and the United Kingdom, which are in the vanguard of decline. The emerging numerical importance of manpower in Eastern countries

is evidenced by rapid increases in Roumania and Yugoslavia. Comparative trends in Czechoslovakia and Yugoslavia reflect the demographic differences between countries of relatively equal population and resources with bonds of common ethnic origin, one of which has been modernized and industrialized, the other of which is still largely a peasant country.

The changing balance of military manpower in Europe is illustrated for the major regions in Figure 42. The relationship of

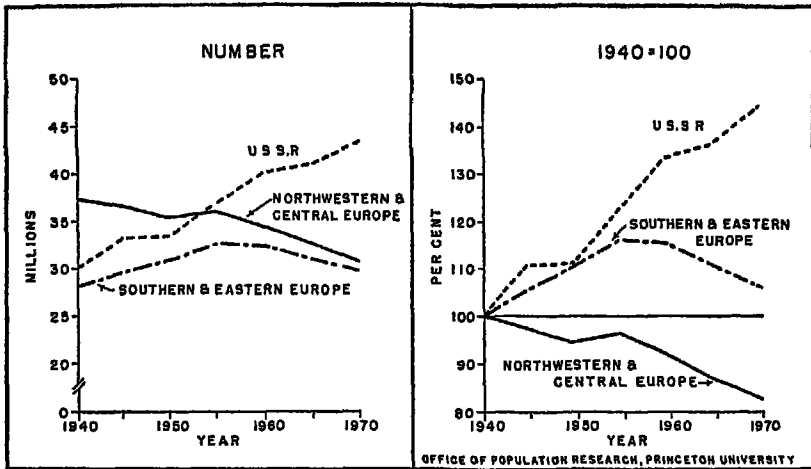


Figure 42. Number of men in prime military ages, 15-34, and ratio to 1940, by major regions, as projected 1940-1970.

manpower to military potential is far too complex to permit the generalization that this shift in manpower balance to the East necessarily means an equivalent shift of military potential. The latter is a composite of manpower, natural resources, technology, economic organization, national psychology, and political alliances. Technological inequality may be so great that manpower is an inconsequential factor, as has been the case in the relation of the Western powers to the more backward areas of the world. Obviously, past political disunity has rendered ineffective overwhelming numerical superiority in such countries as China. The relationship may be generalized in the statement that within the framework of a given stage of political organization and technological development, manpower is an important element in military

potential and military achievement; as between different cultures the influence of numerical differences in manpower may be great or insignificant, depending on a multitude of economic, political, and psychological factors.

The recent history of Japan illustrates the complicated nature of the problem. Students of Japan generally agree that the realization of population pressure on limited resources was one of the factors producing the trend of events leading to war. In its early stages the war in China appeared to prove the irrelevance of manpower in conflicts between countries of marked difference in technological development. But as the Chinese fought on, it became apparent that the inexhaustibility of China's manpower reserves was one of the major reasons for Japan's difficulties. The course of the war and the plans for the future have also transformed Japan's view of her own manpower problem from one of redundancy to one of scarcity. Given success in her plans to become the industrial and political leader of East Asia, Japan would have faced problems of manpower deficiencies. With defeat, the major problem of Japan's future may well be that of the increasing pressure of a rapidly expanding population on an inadequate resource base.

In Europe population trends and manpower have undoubtedly had a role in the balance of power. The hegemony of France in Europe in the past was certainly not unrelated to the fact that she was the most populous as well as the most advanced of European countries. The rise of German power is certainly in part a function of her predominance in manpower as compared with countries of equivalent technological development.

The eastward movement of the weight of manpower has significance only in company with other elements. Manpower, to be effective, must be implemented with effective economic and military weapons and organized in the context of political unity. However, it seems reasonable to suppose that the past history of diffusing industrial civilization will continue. From its nucleus in England, the Low Countries, Northern France, and Western Germany this technological civilization has spread in widening concentric circles to include Scandinavia, Germany, Bohemia-Moravia, Austria, Northern Italy, and Northern Spain. In embryonic stage, it has become established in the capitals and larger cities of Eastern

Europe. In Russia, through vigorous governmental action, the transition from a feudal to an industrial society has been made in little more than a generation. With political security there is an almost irreversible trend toward an increasingly effective industrialized economy. At the same time that the manpower of Eastern Europe and the U.S.S.R. is becoming much larger relative to that of Western Europe, this formerly backward area is also finding the tools to make its manpower effective.

### *Effects of War and Migration on Manpower*

Three major developments emerge from the projections of future manpower in Europe. Firstly, the number of men of working age will not continue to increase as rapidly as it has in the past, and an eventual decline is implicit in the continuation of past trends. Owing to the time lag between birth and entrance into the labor force, the point of decline should be reached somewhat later in the labor force than in the total population. Secondly, Europe is clearly destined to have an aging working contingent. In many respects this will raise more serious problems than changes in the total size of the potential working force. Finally, the two tendencies toward aging and toward decline in total manpower are at very different stages of development in Western and Eastern Europe. The shifting weight of manpower, if accompanied by industrialization and greater economic efficiency, may well produce an eastward shift of economic and military power.

Patently, these developments can be modified by war and international migration. In general, war will check the growth of the potential working population and hasten the aging process. Military casualties remove men from the most active part of the labor force. The loss of productive capacity as a result of men killed and maimed in the last war is unquestionably enormous. Military losses in the present conflict will reduce the potential manpower and will, at least temporarily, age the labor force by killing more young than old men; for the future it will have the reverse effect, when the young workers of today, reduced by war, become the older workers of 1970.

Excess civilian mortality will probably have little effect on the age distribution of the worker force. The most vulnerable age groups are not in the working force and there is no a priori reason



for supposing that deliberate extermination would be consistently selective of certain ages. Birth deficits will not affect the labor force for fifteen years. From 1955 to 1970 they will be a factor tending to age the working force, because they will reduce the number of young workers.

Overseas migration after the war would reduce the number of men in the working ages available in Europe. Likewise it would tend to age the working force because emigrants are mostly young adults. From the viewpoint of Europe, the resumption of overseas migration composed primarily of young men would have the quantitative effect of an equivalent number of military deaths.

Migration within Europe might counterbalance some of the emerging regional differences. These differences in themselves would promote migration from East to West, but to equalize the differences would require a movement of many millions in a few years. Some migration is likely to occur, and to the extent that it does, differential growth of manpower will be checked. During the interwar period only about two million people migrated from Eastern to Western Europe. The net migration of males in the working ages probably did not much exceed a million or an average of perhaps 50 thousand a year. Equalizing the rates of growth of males in the working ages between 1940 and 1955 would require a movement of over 5 million males as between the West and North and the East and South. This would predicate an annual movement of a third of a million men a year. A similar equalization as between the West and the U.S.S.R. would necessitate a migration of 9 million men, or 600 thousand a year.

War and overseas migration will accentuate the tendency toward decline and aging of manpower in Northwestern and Central Europe, and reduce somewhat the rapid increases projected for the South and East and the Soviet Union. Intra-European migration will promote the trends in some countries and check them in others. However, the fundamental relationships shown by the projections will in all probability remain intact.

## CHAPTER VI

### WOMEN: DEMOGRAPHIC AND ECONOMIC POTENTIAL

DEMOGRAPHIC factors affecting the potential labor force of a country are not confined to trends in the number of males, for women have always played an important, though supplementary, part in the labor market. Their part is supplementary because they also have the function of bearing and rearing the next generation. Consequently, able-bodied women do not enter the labor force automatically, and the number of women who are employed is not closely defined by the number in the working ages. To a considerable extent, they serve as a labor supply having skill but small prospects for advancement, and as a labor reserve called upon in times of manpower shortage. There has been a general trend toward increasing participation of women in economic activities other than those of the home and the farm, a trend that many factors will tend to perpetuate. On the other hand, the imminence of widespread population decline may enhance the importance of the maternal function. In this situation a growing competition between the two roles seems likely. It is important to discover how demographic factors may favor one role or the other and thus affect both the future economy and the future population.

#### *Trends in the Number of Women, 1940-1970*

The general trends in the projected number of women resemble those of men because similar assumptions are made as to the future course of mortality and no allowance is made for war losses or migration. The total number of females in Europe increases during the period from 1940 to 1970, but this net gain is the resultant of wide regional variations. The Northwestern and Central region experiences a decline of 6 million women, the East and South an increase of 12 million, and the U.S.S.R. an increase of 37 million.

Figure 43 permits the comparison of changes in the number of females with those of males for broad age classes between 1940 and 1970. In each age group below 65 for each region, the number of females either increases less or decreases more than the number of males. In the young ages, the differences are the result of assumed

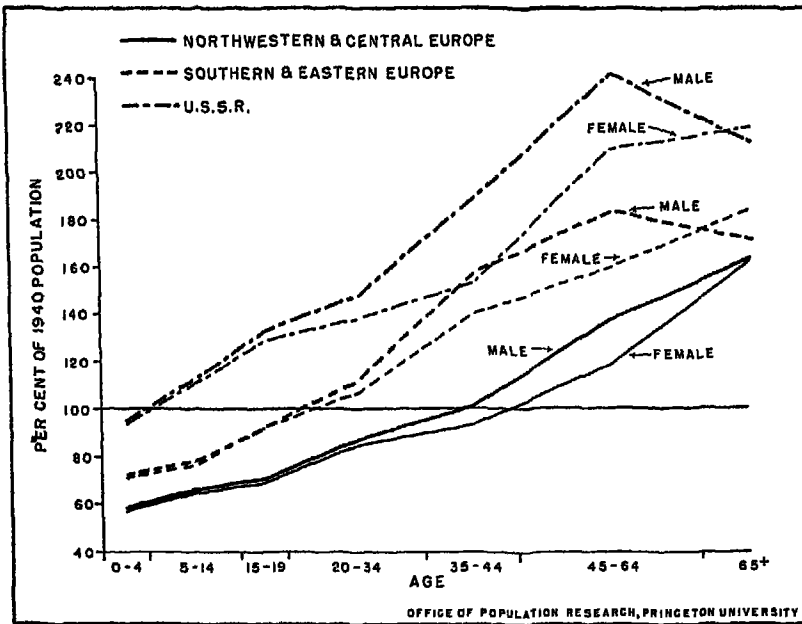


Figure 48. Ratio of projected population of 1970 to that of 1940 by age and sex, by major regions.

greater saving of life among males, particularly in the Soviet Union where large reductions in mortality are still to be made. The much more rapid increase of males than females at ages 35-44 and 45-64 is in major part due to the fact that the male population, by assumption, is recovering from the effects of the first World War. Depleted groups in 1940 are replaced in 1970 by groups assumed to be unaffected by war. The net result in the period under review is that the total number of females declines sooner or grows less rapidly than that of males. In Northwestern and Central Europe males decrease by 2 per cent; females, by 5 per cent. In Southern and Eastern Europe males increase 18 per cent and females, 14 per cent. And in the Soviet Union males increase 49 per cent; females, 41 per cent. These differences will be modified and may be eliminated by the current war.

The general course of age change by regions is the now familiar one. Between 1940 and 1970, females under age 5 decline in all three regions, while the group 5-14 decreases west of the U.S.S.R. Women 15-44 decline in the Northwestern and Central regions but

increase elsewhere. Those 45-64 gain in number in all regions, although the proportionate increase is least in the Northwestern and Central region, intermediate in the South and East, and largest of all in the U.S.S.R. The same sort of increase occurs among the aged, but the relative gains are much greater.

From both the economic and the demographic point of view, women 15-44 form the most important segment of the female population. They comprise the majority of women available for employment and are the group responsible for reproduction. Trends in the number of women 15-19, 20-34, and 35-44 differ in the various regions. Throughout the entire thirty-year period all of these age groups decline in Northwestern and Central Europe, and all increase in the Soviet Union. In Southern and Eastern Europe, girls aged 15-19 decline but the other two classes increase. In Northwestern and Central Europe, the number of women in the productive and reproductive ages is at its maximum in 1940, the 55 million of that year being replaced by only 47 million in 1970. In Southern and Eastern Europe, the maximum is not reached until about 1965, and the 44 million in 1970 is 5 million larger than the number in 1940. In the U.S.S.R., on the other hand, the number of women aged 15-44 is still increasing in 1970, when it is 60 million, or 17 million more than in 1940. The demographic and economic potential of women declines in the West, while it rises for another quarter of a century in the East, and throughout the period under review in the Soviet Union.

### *The Economic Role of Women*

Employment of women as active members of the labor force varies with the nature of the economy and the demand for labor. In agrarian economies women are important agricultural workers, particularly in times of harvest and other peak loads. There is, however, little real competition between agricultural occupations and the bearing and rearing of children, for the two are not mutually exclusive. With increased industrialization, the employment of women has shifted away from the home and the farm to outside occupations, with the result that competition between the two functions has sharpened. The demand for women in occupations outside the home depends, in an industrial economy, not only on prevalent customs as to the employment of women, but also upon

the state of the market. In times of war or industrial expansion, the economic demands upon women affect all ages. However, in peace time women in occupations other than agriculture and domestic service include many young women who will soon marry. For example, in England and Wales, according to the 1931 census, more than half of all employed women were between the ages of 18 and 34.<sup>1</sup> In general, women in nonagricultural employment are concentrated in the younger ages.

More significant from the demographic point of view is the proportion of married women gainfully employed, particularly at those younger age groups most important for the bearing and rearing of the next generation. Pertinent data are not available for all the countries of Western Europe but there is evidence that in several of them during recent decades the proportion of married women employed has increased.<sup>2</sup> Such a trend is not universal. In France from 1906 to 1931 and in the Netherlands from 1909 to 1930 the proportion of married women gainfully employed showed little significant variation either among all married women or among those 20-40 years of age. In fact, there was a decrease during those decades. In France, however, the proportion of married women who are employed is so high that an upward trend would seem unlikely. In 1931, this proportion was 44 per cent in contrast with only about 9 per cent in Sweden and 8 per cent in the Netherlands in 1930, and 29 per cent in Germany in 1933. In the Netherlands, although there was a slight decrease in the percentage of married women who were gainfully employed during the

<sup>1</sup> England and Wales. Registrar-General. *Census of England and Wales, 1931. Industry Tables*, p. 538.

<sup>2</sup> The data on employment of married women were obtained from the following sources:

France. Statistique Générale de la France. *Résultats statistiques du recensement général de la population*. 1906, Vol. I, Part 2, p. 153, and Part 3, pp. 62-63; 1921, Vol. I, Part 2, p. 77, and Part 4, pp. 38-39; 1931, Vol. I, Part 2, pp. 20 and 97, and Part 4, pp. 30-31.

Netherlands. Centraal Bureau voor de Statistiek. *Bijdragen tot de statistiek van Nederland*. No. 170. Census of 1909, Vol. 2, Part 2, pp. 382-388; *Statistiek van Nederland*. No. 382. Census of 1920, pp. xii and 86; *Statistiek van Nederland*. Census of 1930, Vol. VIII, pp. 5 and 145.

Sweden. Statistiska Centralbyrån. *Folkräkningen*. 1910, Vol. II, p. 9, and Vol. III, p. 450; 1930, Vol. II, pp. 83\* and 43\*, and Vol. VII, p. 3; Myrdal, Alva. *Nation and Family*. New York, Harper and Brothers, 1941, p. 406.

Germany. Statistisches Reichsamt. *Statistik des Deutschen Reichs*. Band 402. Part III, pp. 424 and 439; *Wirtschaft und Statistik* 21(8): 50-51. First February No., 1941.

entire period from 1909 to 1930, there was an increase from 1920 to 1930, both for the total and for the younger group of married women.<sup>1</sup>

In contrast to the situation in France and the Netherlands, in Sweden and Germany there have been steadily rising trends in the proportion of all married women listed as members of the labor force. In Sweden this proportion rose from 3 per cent in 1910 to nearly 9 in 1930, and to 14.1 per cent in 1935. A similar trend occurred in Germany from 1907 to 1939. In the earlier year 26 per cent of all married women were reported as engaged in gainful employment; by 1939 this percentage was nearly 33. At the latter date Germany was experiencing a period of industrial expansion necessitating a larger working force, but at the same time the authorities were introducing strong policies to raise the birth rate. In spite of the pro-natalist program, the proportion of all married women who were employed rose from 29.2 in 1933 to 32.7 per cent in 1939.

These changes would be even sharper if the analysis could be confined to the proportion of married women employed in occupations taking them completely away from the home. Even in countries where the proportion of married women in all occupations has shown little variation, the substitution of urban for agricultural pursuits has clearly brought about an increase in the percentage of women working outside the home. It is the married women in these occupations who feel most keenly the competition between their economic and maternal roles. Trends toward an increasing proportion of married women who work carry important demographic implications. Under present conditions most young married women who are employed must choose between having children and keeping their jobs. It would seem from past trends that many women elect to keep their jobs.

### *The Reproductive Role of Women*

The growing economic activity of young married women is particularly significant in view of the incipient decline in numbers and

<sup>1</sup> Unfortunately, the data for the Netherlands include widowed and divorced with married, so that trends for the married alone could not be obtained. The proportion of married women employed is unusually low in both Sweden and the Netherlands, but for very different reasons. In Sweden marriage occurs at a relatively late age and a large proportion of women remain unmarried. In the Netherlands, fertility is very high for an industrial country.

the gradual aging of the female population. According to the projections, the time is not far distant in Europe when declining numbers of potential mothers will intensify the underlying trends toward fewer births. Moreover, the situation is even less favorable to population growth than that indicated by figures relating to the entire reproductive span. In Europe, approximately three-fourths of all live births occur to women between the ages of 20 and 35. The number of women in these age classes decreases more rapidly than the number in the broader age span from 15 to 45. For all Europe, excluding Russia, the number of women in the ages of maximum reproductivity increases 5 per cent between 1940 and 1955, but then declines 10 per cent between 1955 and 1970, with the net result that the number in 1970 is 6 per cent less than it was in 1940.

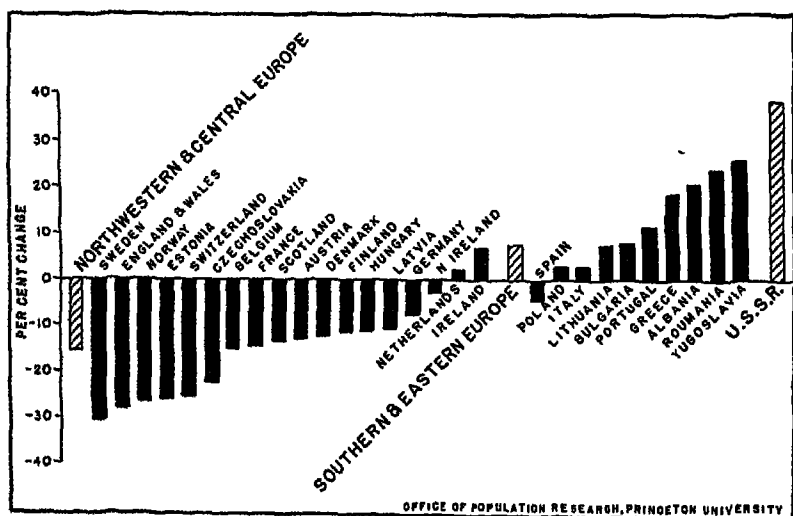


Figure 41. Per cent change from 1940 to 1970 in projected number of women 20-31 years of age, by country.

The pattern of change within the continent (Figure 44) is quite similar to that for men in the prime military ages, which has already been discussed. The decline for ages 20-34 between 1940 and 1970 is 24 per cent for the British Isles, 12 per cent for Western and Central Europe, and 21 per cent for Northern Europe. In Southern Europe there is a negligible increase of

one per cent during the thirty years, while in Eastern Europe there is an increase of 13 per cent. Even in Eastern Europe, however, and even before the present war, the end of the period of increasing demographic potential was in sight. The increase of 19 per cent between 1940 and 1955 is followed by a decrease of 6 per cent between 1955 and 1970. Once again, the trend is different for Soviet Russia. The group 20-34 increases continuously from 1940 to 1970; by the latter date the 32 million women of these ages exceed by 38 per cent the number in 1940.

Increasing numbers of women 20-34 in Southern and Eastern Europe and the Soviet Union will raise the birth potential of those regions, while shrinking numbers will reduce that of the North-western and Central region. If, meanwhile, in the last region the proportion of married women who work continues to rise, a reversal of the interwar trends in fertility will indeed be difficult to obtain.

### *The Balance of the Sexes*

The effect of aging on fertility will also be intensified by deficits of males, which, in Europe, are the heritage of past wars and migrations. The imbalance of the sexes is an important factor today tending to enhance the economic and weaken the reproductive role of women. Normally, there is a predominance of males at birth, but after birth differences in mortality favor the survival of females. The degree of such differences depends on the extent of public health and medical service, and on the levels of living and education. Thus, even within a closed population subject neither to migration nor to war, there would be differences in the numbers of males and females in the various age groups. The actual populations that existed in Europe in the interwar period reflected the combined influence of mortality conditions, greater overseas emigration of males, and war losses. There were large deficits of males; in Europe west of Russia the deficit was 42 per 1,000 women, and in the Soviet Union, 79. Without war or emigration, and with a continuation of trends of the interwar period, these deficits would have decreased gradually until 1970 (Figure 45).

Examples of the effects of war and migration on sex ratios are shown in Figure 46. The balance of the sexes in Sweden from 1910 to 1970 illustrates the process of recovery from a large



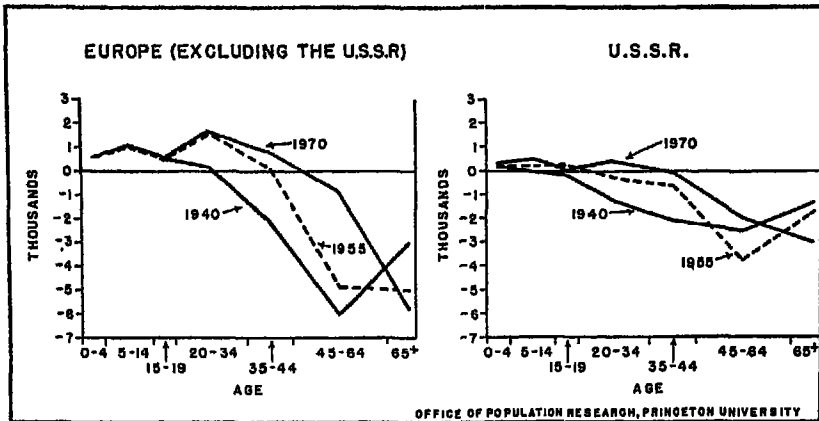


Figure 45. Deviation of number of males from that of females of corresponding age in 1940, 1955, and 1970, for Europe and the U.S.S.R.

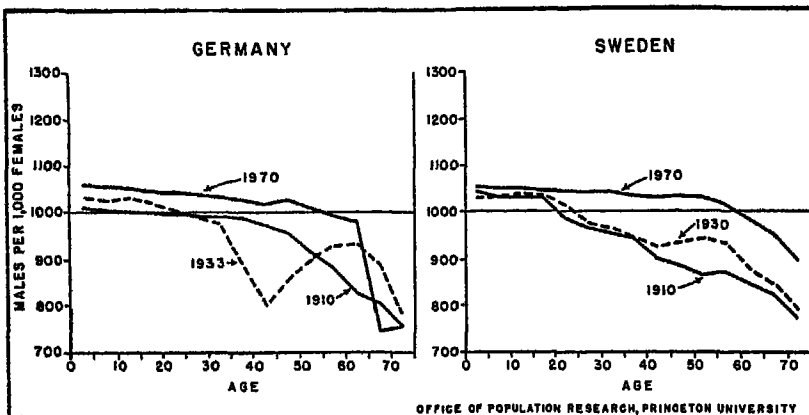


Figure 46. Sex ratio at each age in Germany, 1910, 1933, and 1970; and in Sweden, 1910, 1930, and 1970.

overseas migration that resulted in deficits of young males. Moreover, the pattern for Sweden, which remained neutral in World War I, indicates what might have been the experience of other countries if they had avoided war. In general, the surplus of males in the youngest age groups was greater and the deficits in later age groups were less in 1930 than in 1910, primarily because lowered mortality resulted in greater saving of male lives. The sex ratios of Germany illustrate a country recovering from war losses, for

the large deficits of males in the age group 35-49 in 1933 represent losses in the group 16-30 in 1914.

The significance of deficits of males depends on the extent to which they are evenly diffused throughout all ages, or concentrated in particular ages. At the present time, in all regions of Europe there is an excess of males at ages under 20, and in the projected populations this excess increases consistently to 1970. In Europe as a whole, the surplus of males among young workers, those from 20-34 years of age, increases from 4 per 1,000 females in 1940 to 37 in 1970. This expanding surplus of males in the most marriageable ages would probably be conducive to the maximum marriage rate for women. It would, therefore, strengthen their demographic role at the same time that it tended to weaken their position in the labor market.

The group from 45-64 years of age in 1940 contains the majority of the survivors of the conflict of 1914-1918. In this age group alone is concentrated 6.0 million of the total deficit of 8.6 million males on the continent of Europe outside the Soviet Union. As the cohorts of males decimated by the last war pass out of this group, the deficit of males decreases from nearly 6 million in 1940 to .9 million in 1970. Sex ratios for the aged tend to decrease in the period under review, as the soldiers of the first World War reach old age. In 1940, for the continent as a whole, there are 3 million fewer males than females 65 years and over; by 1970, this number reaches 5.8 million.

Unfortunately, this picture of a continent gradually approaching a numerical equality of the sexes in the total population represents what might have been, not what will be. Losses in the present war fall on populations in which there are already deficits of millions of men from the last war. The populations of 1955 will probably have deficits rather than surpluses of males in the group 20-34 years of age. Those aged 35-44 in 1955 will have still lower proportions of males, since they will be the survivors of persons 20-29 years of age in 1940. The general nature of the sex ratios that will actually exist in 1970 is best suggested by those that existed in 1940, twenty-six years after the beginning of World War I. There is one important difference, however. The deficits of males produced by the last war affected populations that had not been decimated by wars since the Napoleonic period. At the end of the

present conflict the relative surplus of women in Europe may be the greatest in the history of the continent.

Such a surplus of women will tend to depress fertility and encourage the gainful employment of women. Marriage among women is at a maximum in the presence of a substantial excess of males. In societies with large deficits of males the scarcity of husbands leaves many unmarried women who never realize their reproductive potentialities. Moreover, a woman's decision to enter the labor market and the length of time she stays there are usually determined by the alternative possibility of marriage. During the last two decades the entrance of women in increasing numbers into the labor market was one of the consequences of the heavy loss of men in World War I. Numerically, it was impossible for millions of women to marry in the Europe of the 'twenties. In addition, the deaths of fathers or husbands increased the proportion of women who became self-supporting and assumed the care of aged relatives or minor children. It is possible that the development of independence among women and of values antithetical to home and children may have been to some extent a rationalization of a way of life that was a demographic necessity.

The deficits of males will have wide ramifications. Under an economic system in which men have not only preferential training but also preferential selection for jobs and preferential tenure once they have jobs, the existence of a large surplus of women becomes a major social problem, especially when these women reach middle age. The traditional women's fields become increasingly overcrowded, remuneration is lowered, and competition with men for work is intensified. This problem became acute in the nations of Europe during the depression of the 'thirties. In Germany, for instance, the census of 1933 revealed a deficit of 180 males per 1,000 females at ages 35-39, 196 at ages 40-44, 142 at ages 45-49, and 99 at ages 50-54. The early Nazi agitation reviving the effort to restrict women to "Küche, Kirche, und Kinder" may have been in part a product of this situation. In the next generation there will be increasing numbers and a higher proportion of women among the aged, and many of these will have no children to care for them when they can no longer be self-supporting. They will constitute a major problem for social insurance systems and relief agencies.

*Responsibility for Child Care, 1940-1970*

Whether declining fertility is cause or effect of women's expanding economic role outside the home, it has in any case greatly reduced their responsibility for child care, and, on the trends projected, will continue to do so. As may be seen in Figure 47, the

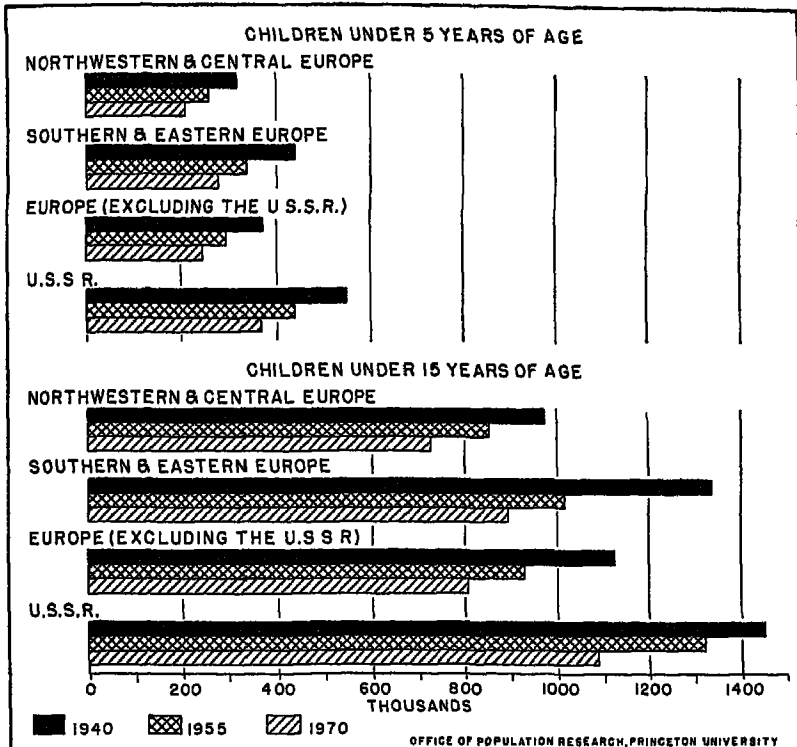


Figure 47. Number of children per 1,000 women 15-44 years of age, by major regions, as projected for 1940, 1955, and 1970.

ratio of children under age 15 to women 15-44 years of age declines in each region between 1940 and 1970. The regional differences are somewhat smaller in 1970 than in 1940 but the relative positions remain the same. By 1970 the ratios are 784 children per 1,000 women aged 15-44 in Northwestern and Central Europe, 899 in the South and East, and 1,094 in the Soviet Union. The relation between the number of children under 5 years of age and the number of women in the reproductive ages is a more sensitive

measure of the minimum burden of child care. It assumes particular importance during periods of labor shortage, such as the present war, since the load of physical care is much greater for pre-school than for school-age children. The relative pattern of decline in the proportion of children under 5 to women 15-44, and the regional differentials in Europe at any given period of time, are similar to those for the total group under 15 years of age.

The fertility trends assumed in the projections would result in a considerable release of womanpower from the traditional functions of childrearing. In the industrial nations of Northwestern and Central Europe, there would be an average of less than one child under five for every four women at ages 15-44. The declines in Eastern and Southern Europe would be proceeding according to the same pattern but with a lag of about twenty years.

#### *The Competing Roles of Women, 1940-1970*

Reconciliation of the economic and maternal functions of women will be a major social problem in the future of Northwestern and Central Europe, and, eventually, of much larger sections of the world. In agrarian and handicraft societies the family achieved that reconciliation, coupling economic productivity with a necessarily heavy burden of childbearing. In the technical and demographic transition many economic functions of the family were lost to larger and more efficient units, to which women with few or no children could best contribute. Partly by consequence, fertility declined. At first the decline presented no threat to society, for with the reduction of mortality, reproduction, no less than production, was becoming efficient. Now, however, the reductions in mortality that count, so far as the ultimate maintenance of population is concerned, have largely been made. Population decline can only be stopped by a new vital balance in which fertility is somewhat higher than that characterizing the latter part of the interwar period. Such a rise will call for a new reconciliation of the economic and maternal functions.

Many factors will tend to release women for gainful employment. Homemaking will be less and less a full-time occupation. The extension of public education, the provision of day nurseries, the advance of free medical facilities, the greater use of restaurants, the development of mechanical appliances as substitutes for the

more tedious aspects of housework, all may free women for employment outside the home. Smaller proportions of women will be in the ages when responsibility for children is heaviest, a responsibility already small and likely to become smaller. The scarcity of husbands as a result of war losses will also tend to increase the number of women in the labor market.

The demand for women workers may also increase. It certainly will if large military forces are maintained after the war. Whatever the military situation, other factors lead in the same direction. Technical changes have greatly expanded the number of jobs that can be as adequately filled by women as by men, and the experience of this war, like that of the last, will facilitate the shift. Moreover, with the aging of the labor force, work requirements hitherto filled by young men may shift in part to young women, though it is obvious that this substitution is limited by the fact that the potential female labor force is also aging.

Social as well as economic changes would result from the increased employment of women. At present, entrance into the labor force is an accepted custom for young women, but for most of them the tenure is temporary. Marriage, even without children, frequently means eventual withdrawal from employment. If it became the practice for women to look forward to a fifty-year period of remunerative occupation, the family as a social institution would certainly be greatly altered. Urban life has already eliminated many functions of the family and has modified those that remain. Increasing participation of women in the labor market will accelerate the transformation of the family into a group serving chiefly personal needs, and one ill-adapted to the maintenance of the population. Thus the process tends to accumulate. The employment of women brings changes in social structure and in the motivations on which reproduction depends, thereby stimulating further increases in employment and decreases in fertility. Moreover, the influence of gainful employment on fertility is not limited to the years of employment or, indeed, even to the individuals employed. Economic activities outside the home have served as one of the most effective means of spreading among women attitudes toward personal independence, leisure, and higher standards of living that are generally incompatible with high fertility. Attitudes thus acquired by single women carry over to their married

life even when employment stops, and spread to those who have never entered the labor market. The withdrawal of married women from gainful employment would not automatically solve the problem of population replacement.

The influence of these factors must, of course, not be exaggerated. The personal and emotional needs of most adults for a family will always exist. However, a small number of children will meet these needs. Families large enough to prevent ultimate population decline are likely to be elicited only with social structures and motivations more favorable to reproduction.

A social situation favorable to reproduction is unlikely to re-establish itself automatically, but probably will have to be re-established by deliberate social action. Societies so complacent as to ignore trends leading to their biological extinction probably do not exist. Therefore, the main problem is not whether the trends projected should ultimately be reversed, nor even whether or not attempts will be made to bring about such a reversal. The realistic questions are when, how, and with what social-economic consequences. It will be recalled from the discussion of Figure 9 in Chapter I that for many Western countries the maintenance of a stationary population would require a rise in fertility for some time to come, and that the longer that rise is delayed, the greater it will have to be. If social policies are to stimulate such a rise, fewer women will be available as workers. Even under modern healthful conditions women cannot be continually employed away from home and at the same time bear and rear sufficient children to maintain the population.

An adjustment of the rival claims may be achieved. Part-time employment, maternity leaves, social provision for child care prior to school age, public education, free medical care, and relief from other costs of childrearing have already made their appearance in many countries. Such policies carried out on an adequate basis would require far-reaching social-economic change. Moreover, unless carefully developed, they could defeat themselves by encouraging the further rise of individualism and the further weakening of the family institution. The reconciliation of competing claims of the economy and the family will be one of the most important social problems of populations facing sharp decline.

## CHAPTER VII

### THE BURDEN OF DEPENDENCY: YOUTH VERSUS THE AGED

IN any economy, people in the central span of life must provide not only for their own needs but also for those of the youth and the aged. Children and old people must be supported, whether in families or in private institutions, by private or by public funds. Increasingly, the support of the aged has become a governmental obligation in the form of pensions and aids of various types, while public education is only the most outstanding of the subsidies that modern governments give on behalf of children. But the support of these dependent groups, whether under private or governmental auspices, falls upon people in the working ages.

Age limits of the productive and dependent groups are socially determined within a fairly wide range. In agrarian economies physiological criteria generally prescribe the age at which productive employment begins and ends. There is a gradual process of entry to and departure from productive life, especially among peoples engaged in family and subsistence agriculture. But the development of industry and commerce has meant that increasing numbers of people enter and leave the labor market at fixed ages, regardless of their capacities. Many occupations have formal prescriptions concerning the minimum age of entry and the maximum age of retirement. In some countries child labor laws set a lower limit, but the development of higher education has meant that increasing numbers of young people postpone entrance into full-time productive employment several years beyond this legal minimum. At the same time, pensions payable at specified ages tend to fix the modal age for retirement.

Any age limits set for the productive and dependent groups are bound to be inadequate for the heterogeneous area and the thirty-year period under consideration. Nevertheless, uniformity of treatment requires that some arbitrary limits be set. Hence, for the present discussion, children are defined as all persons under 15 years of age, the productive population as persons 15-64, and the aged as those 65 and over. These definitions have the advantage of



general conformity to physiological potentialities for full employment.

### *Changes in Productive and Dependent Ages*

The proportion of European population in the ages of dependency has been falling for many years and probably will continue to fall for years to come. Figure 48 illustrates the continuity of the

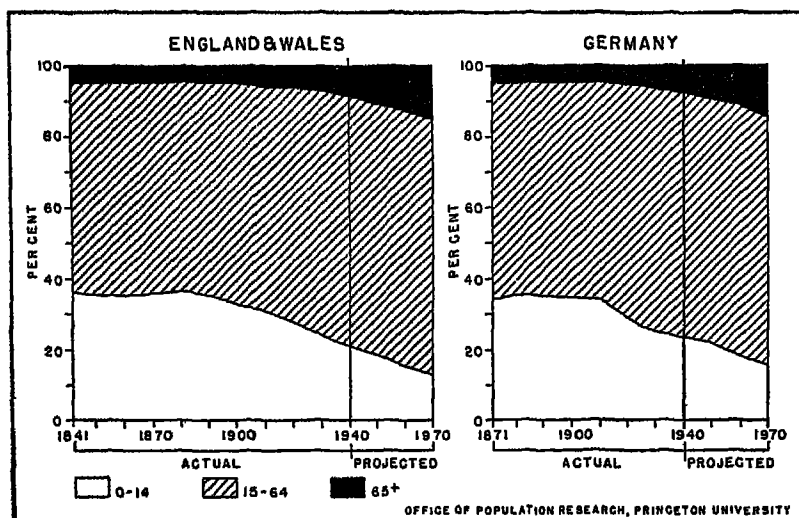


Figure 48. Per cent distribution by broad age groups of the population of England and Wales, 1841-1970, and of Germany, 1871-1970.

trend by the experience of England and Wales and of Germany. In both countries the proportion of the aged has risen since the turn of the century. At the other extreme the proportion of children has fallen since 1910 in Germany and since 1880 in England and Wales. Hitherto, the decrease of the youth has outstripped the increase of the aged, bringing about a progressive reduction in the proportion of dependents. In countries leading the vital transition, such as Germany and England and Wales, this decline in dependents is beginning to be checked by the rising proportion of the aged. However, even in these countries the proportion of dependents begins to increase only after 1960, and in Southern and Eastern Europe and the U.S.S.R. the period 1940 to 1970

is characterized throughout by a declining proportion of dependents in the projected populations.

From the practical point of view, the age incidence of dependency is quite as important as its total magnitude, and it has been changing more rapidly. With regard to dependency, the three stages of evolving age structure, discussed in Chapter IV, may be characterized as: (1) heavy youth dependency, (2) light dependency, and (3) heavy old-age dependency. The first of these is illustrated by the Soviet Union in 1940 and by Western Europe several decades ago. In the U.S.S.R., 36 per cent of the population was under 15 years of age, and only 4 per cent over 65; that is, nine-tenths of the dependents were children. The situation was much the same in England and Wales in 1881. At that time in Western Europe generally, about 40 per cent of the population was in the dependent groups, or, in other words, there were 2 dependents for every 3 persons in the productive years.

As fertility declines and aging progresses, the stage of light dependency appears. This stage characterizes the populations projected for 1940 to 1970 in most countries of Northwestern and Central Europe. The proportion of the total population in ages of dependency drops to 30 per cent or lower, a ratio of 2 dependents for every 4 to 5 persons of working age. The proportion in the ages of dependency is only about three-quarters of that in the Soviet Union, but persons over age 65 constitute between a quarter and a half, instead of only about a tenth of the group. The economic advantage of this second stage of light dependency is enhanced by the fact that growth is ending at the same time, thereby releasing society from the need of expanding its durable goods merely to accommodate increasing numbers. Apart from problems of the dynamics of the economy and those of the efficient use of older workers, the demographic position favors high productivity per capita.

The projections show Northwestern and Central Europe reaching the minimum of dependency by 1960. Meanwhile, Southern and Eastern Europe and the U.S.S.R., the latter lagging behind, move rapidly from the first toward the second stage. Panel A of Figure 49, which shows the ratios of dependents to the productive groups, indicates that the regional differences narrow considerably between 1940 and 1970. The ratio for the South and East in 1970

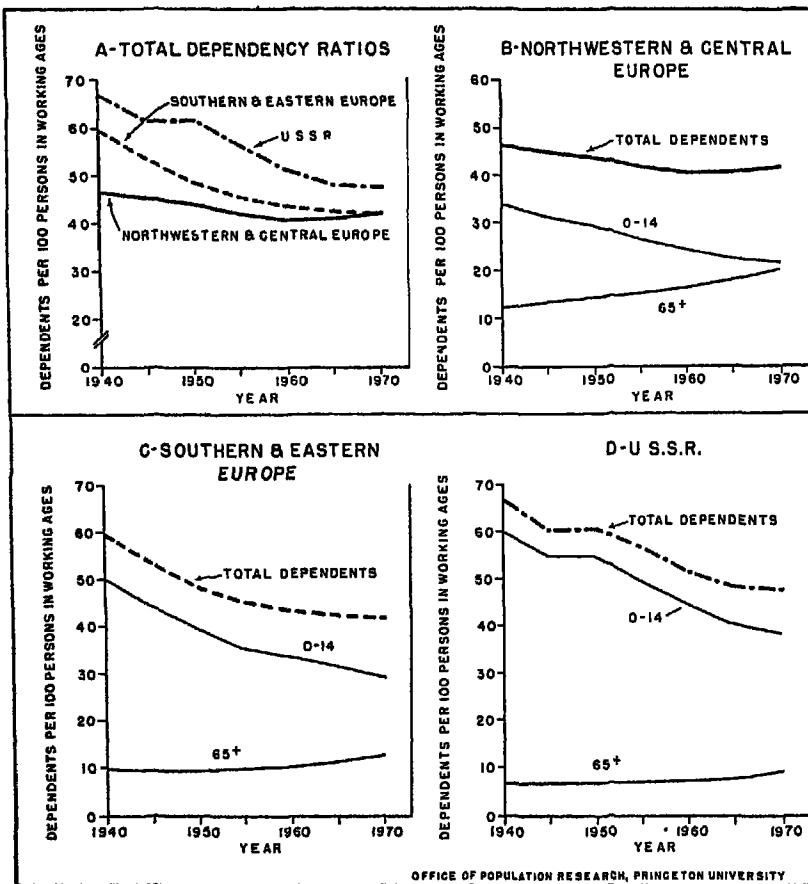


Figure 49. Number of persons under age 15 and at 65 and over per 100 persons aged 15-64, by major regions, as projected 1940-1970.

is that of 1955 for Northwestern and Central Europe, and the ratio for the Soviet Union in 1970 is a little below that of 1950 for the South and East.

The favorable trends projected for Southern and Eastern Europe and the U.S.S.R. arise from the same processes that brought about similar developments in the West (Figure 49, panels C and D). In 1940 in the South and East, children under 15 are 50 per cent as numerous as persons 15-64; by 1970 they are less than 30 per cent as numerous. Meanwhile, the number of the aged per 100 persons in the productive ages moves only from 9 to 10

between 1940 and 1960, then rises to 13 by 1970. In the U.S.S.R. the ratio of child dependency drops rapidly but still remains high by 1970, at which time the ratio of aged dependency is only about that of the South and East in 1940.

Although the ratio of total dependents to adults of working age does not reach its minimum until 1960 in Northwestern and Central Europe, the declines projected for 1940 to 1960 are not large. As may be seen from Figure 49, panel B, the ratios are relatively stable for the period 1940 to 1970. However, the stability is the result of compensating movements in the proportions of youth and of aged. In 1970 the projections show nearly as many persons 65 or more years of age as children under age 15. In six countries of the region the aged are more numerous than the children, while in the extreme case, Sweden, only an eighth of the population is under 15 and a sixth is over 65 (Figure 50). By 1970, the rise of the dependency ratio is under way. Perpetuation beyond 1970 of the trends projected would rapidly bring on the third stage of heavy old-age dependency.

The magnitude of the age transitions projected for 1940 to 1970 in the three great regions is shown by the absolute numbers involved. In Northwestern and Central Europe the 54 million children of 1940 decline to 34 million in 1970. That is, there would be 20 million fewer children to care for by the end of the period. By contrast, the 20 million aged in 1940 increase to almost 33 million in 1970. The changes are also large in the South and East, where the number of children falls from 52 to less than 40 million, while the aged increase from under 10 to over 17 million. However, even in 1970 the aged are still less than half as numerous as the children. In the Soviet Union the number of children is larger in 1970 than in 1940 despite the beginning of a decline after 1950; the net change from 62.5 to 65.8 million is small. On the other hand, the aged, who continue to be a small proportion of the total, increase from 7 to 16 million.

Regional differences in the absolute number of children and of the aged projected for 1970 illustrate vividly the forces behind the regional redistribution of population. The aged, representing the past, number 33 million in Northwestern and Central Europe, as against approximately that number in the other two regions combined. On the other hand, children, representing the future, are

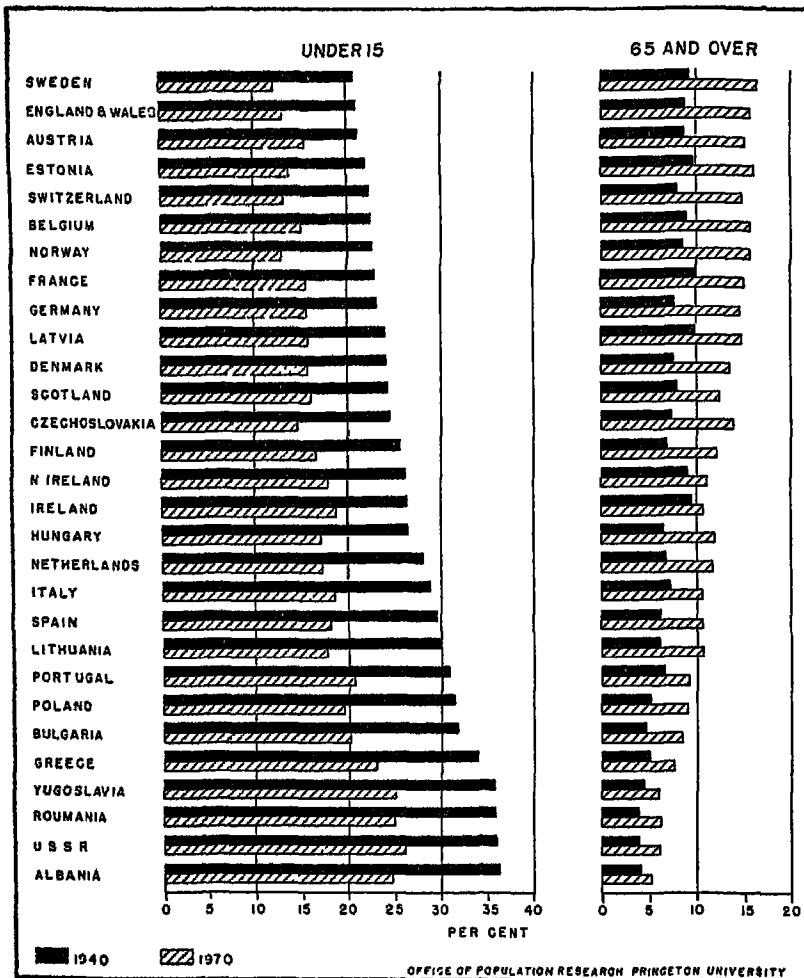


Figure 50. Per cent of the population under age 15 and at 65 and over, by country, as projected for 1940 and 1970.

more numerous in both the U.S.S.R. and the South and East than in the Northwestern and Central region. If children under age 5 instead of those under age 15 are considered, the number projected for 1970 in the Soviet Union is almost as large as that for all of the rest of Europe combined. This fact suggests the magnitude of the regional shifts that would appear if the projections had been carried beyond 1970.

*Implications of the Shifting Balance of Dependency*

The effects of the declining load of dependency in the Soviet Union and Southern and Eastern Europe should not differ essentially from those already encountered in the Northwestern and Central region. Individual families are better able to provide for the needs of a few children than for those of many, and the state is in the same position. Declining child populations, unaccompanied by a rapid increase of the aged, substantially reduce the social burden and offer an excellent opportunity for improving both the standards of home care and those of state services for children. Given stable government and an efficiently functioning economy, declining proportions of children should result in reduced child and infant mortality, better health, and rapid advances in education at all levels; in other words, in the more efficient creation of a better human product.

The shifting burden of dependency may be expected to present serious problems in the West because small net reductions in the numerical load will be accompanied by rapid changes in its character. There will be fewer children, but it is not at all clear that the total expenditures for children, either private or public, will decline. The easy gains in public health have already been made. Great reductions in infant and child mortality have been achieved by the application of relatively inexpensive public health and sanitary measures. Further reductions in the most advanced countries are coming more slowly and at higher unit cost, with medical service and improved nutrition taking leading parts.

Similarly, in education the abolition of illiteracy and the provision of rudimentary education have been achieved with relatively small resources. The increased provision of higher education will be much more expensive. Advanced instruction, especially in fields requiring elaborate equipment, such as the physical sciences and technical studies, is many times as expensive per student as elementary instruction. Moreover, the personnel and equipment needed for such training, or even that needed for more adequate elementary education, are not those released by the contracting demands for traditional instruction. It is also possible that advanced societies will eventually accept the principle that higher education should be made available to all individuals having the

capacity for it, without regard to the economic status of the parents.

Clearly, such ambitious undertakings in the fields of child care and training would be expensive. However, they probably can be shown to pay in the long run, even in terms of national income. They will have a powerful appeal at a time when growing scarcity greatly enhances the value of youth as a national asset. It seems likely that the decline in child populations will not be accompanied by reduced governmental expenditures for children, and that analogous considerations may also rule in the case of individual families.

There is every evidence that during the coming decades old-age dependency will pose difficult problems in Northwestern and Central Europe. Even if the number of the aged remained constant, social trends are such as to intensify the old-age problem. Responsibility for the superannuated is shifting rapidly from the family to the state, as the two-generation family replaces the three and as children contribute less and less to the care of their aging parents. Moreover, there is reason to believe that retirement comes at an earlier age than previously. In agriculture, the handicrafts, and the keeping of small shops the process of retiring can be gradual and adjusted to the weakening faculties of the individual. As the economy has become more complex, with larger and less flexible units and more narrowly specialized occupations, individuals tend to be employed fully or not at all. It becomes difficult to find a place for the person who fails to keep the general pace. Moreover, rigid prescriptions that ignore the capacities of the individual tend to lower the age of retirement. These and other factors are likely to be of growing importance in the problem of old-age security.

The very rapid increase of the aged will, of course, magnify the problems. In view of the growing agreement that dependent members of society should be provided with at least a minimum of economic security, the increase of the aged will almost certainly bring an enormous expansion of pensions. The economic burden caused by the number of aged will probably be much heavier than that of an equivalent number of children, who require less in the way of material goods than adults, and much less in the way of medical care than the aged. The cost of providing medical services and hospitalization for the aged, among whom such chronic diseases

as cancer and mental disorders are prevalent, is likely to reach tremendous proportions.<sup>1</sup>

Although problems of the dynamics of the economy are not appropriate to the present discussion, it may be pointed out in passing that savings will be greatly affected. Populations with heavy concentrations in the active adult ages tend to increase both individual savings and institutional savings on behalf of individuals. An aged population tends to liquidate savings. Since both the active adult population and the aged will be increasing together for some time, the processes will tend to cancel each other. In a generation, however, liquidation may be expected to be heavy.

The political and social implications of aging are more tenuous than the economic, but probably they will be quite as important. It appears likely that through their striving for security the aged will modify the institutional organization of any society in which they have political power. If underemployment should lead the growing class of older workers to make common cause with the aged, population trends alone would almost guarantee them dominant power.

Old people have already experienced a painful loss of social status. The family customs of the past gave a prestige that is disappearing. Parental, and particularly patriarchal, controls have been weakened by geographical mobility and the diminution of those fixed ties of property that accompany an agrarian economy. It is also possible that disrespect for the old and glorification of the new, which have been so prevalent in modern civilization, have affected the attitude of the present generation toward its elders. In any event, the position of the aged is weakened simply by the fact that it is no longer a singular achievement to reach advanced years. Old age no longer has a scarcity value. With loss of earning power, and with the absence of respect formerly shown the aged, the psychological problems of old age and retirement may become more acute.

Although the trends both of population and of social organization suggest a rapid proliferation and intensification of the problems of the aged in Northwestern and Central Europe, the primary

<sup>1</sup> Perrott, George St. J., and Holland, Dorothy F. Population trends and problems of public health. *Milbank Memorial Fund Quarterly* 18(4): 859-892. October, 1940.



difficulty will not be the size of the load. Given an era of peace and efficiently functioning economies, the burdens can be readily borne. The chief difficulty is that, on the coming scale, the problems are new, and their solutions will require complex and wise social engineering.

### *The Effects of War, Migration, and Population Policy*

The war will alter somewhat the dependency problems indicated by the projections, as may international migration and postwar population policies. Military casualties will diminish the labor force of the next decades and thereby increase the relative burden of persons in the dependent ages. Birth deficits will reduce the dependency load, but only by further reducing the number of children and eventually that of the labor force. Excess civilian mortality might, it is true, check the aging process. In some European countries, ration systems discriminate against the aged to the advantage of pregnant women, nursing mothers, young children, and workers. Harsh living conditions of the war may reduce the number of the aged for some years, but the fragmentary evidence now available does not indicate that it has thus far done so on a scale comparable to the military losses of the young ages. It is still the young adults who suffer the major casualties.

As has already been suggested, international migration has demographic effects similar to those of military casualties for the country of emigration. Migrants, especially overseas migrants, are predominantly males in the young adult ages. Their loss creates an older labor force. It removes potential parents and thereby reduces the number of children in succeeding years. For the receiving country the results are the opposite. Immigration means an addition to the young working force and an increase in the number of potential parents. In a country hard hit by war, it would tend to offset the imbalance of the sexes arising from casualties. The demographic position of France after the last war was unquestionably strengthened by the immigration of young adults from Italy and Poland. Thus, migration within Europe would retard the process of aging in the receiving areas and advance it in the sending areas. Overseas migration would promote it in Europe as a whole.

Successful efforts to increase the number of births after the war

in Northwestern and Central Europe would, of course, slow the projected rise in the average age of the population. The increases would have to be very large to stop it. Moreover, such a change would mean that the growing numbers of aged dependents would be accompanied by the increase of young dependents. The load per productive worker would then rise sharply. If such a rise should come rather promptly after the war, it would present no insuperable problems, for there will still be large populations in the productive ages. If it should be delayed for two decades, the load of dependency would become very heavy indeed.

In general, war losses, emigration, and increases in births above the numbers projected would all tend to reduce the favorable trend in the ratio of dependents to producers projected for the Soviet Union and Southern and Eastern Europe, and to establish an unfavorable trend in Northwestern and Central Europe. Except in the presence of substantial immigration, the projections suggest a somewhat lighter dependency load than is, in fact, likely to exist.

## CHAPTER VIII

### THE NEXT DECADES

A few decades ago demographic discussion revolved around the dangers of overpopulation. These dangers have not disappeared; in much of the world there is still a heavy pressure of population on developed resources, and the Malthusian controls of hunger, privation, pestilence, and war are the principal checks to growth. Indeed, the Malthusian situation has been so general that it seems almost as typical of man as of other forms of life.

This dismal outlook of never-ending pressure of population on food supply was dispelled in Western Europe, at least temporarily, by the agricultural and industrial revolution and by the discovery and exploitation of the New World. Through the instrumentality of economically developed urban life, these events combined to make possible rising levels of living in Europe despite exceptionally rapid population growth. Accompanying this higher material level of living in urban societies, both as cause and consequence, has been a rational outlook on life conducive to the restriction of family size and the termination of rapid population growth.

The prime movers in the differential development of nations in recent European history have been the advances of science and technology and the way of life that these make possible. The initial development was in the fringe of commercial countries of the West. From there technological civilization has gradually permeated Southern and Eastern Europe. Measured by such indices as illiteracy, infant mortality, and the percentage of the population dependent on agriculture, there is a striking degree of regularity in cultural development. Modern education, improved health conditions, and economic progress are parts of the same cultural complex developed in the West and now in the process of spreading across the continent. Progress flows along the lines of communication, is assisted by the presence of natural resources, and is checked by natural barriers, but in general the level of achievement of any given area is a function of its distance from the centers of diffusion in the West: In Eastern Roumania, and in the inaccessible mountain districts of Yugoslavia and Albania, life is comparable to that of Western Europe generations ago. Intermediate areas tend to

blend toward one extreme or the other, depending upon their geographical location and cultural associations. In terms of the above indices of general cultural development, all Europe may be considered as in the same stream of evolution with differences that are as much a function of geography and historical accident as of any innate affinity for one way of life or another. Eastern Europe is not "backward" because its people are by nature lazy or impervious to the motives that have brought about economic and cultural development in the West. Had they been exposed to the same influences as early as the peoples of the West, it seems probable that they would have developed quite as rapidly. Today the Russians, in particular, are demonstrating that an undeveloped peasant country can be changed into one of the most powerful industrial nations, accomplishing in a single generation what it took many generations to achieve in the West.

Up to the present time the demographic correlate of the diffusion of urban-industrial civilization has been, initially, a rapid decline in the death rate, making possible a huge expansion of population, followed by an accelerating decline of the birth rate that in more advanced countries has reduced population growth, with the imminent prospect of bringing it to an end. The countries of Eastern Europe, which are still in the expanding phase of demographic evolution, face ancient and elementary difficulties in providing a minimum living for a rapidly growing population. In the countries of Western Europe the prospect of a stationary or declining population has dissipated fears arising from the earlier phase. Depopulation is now recognized as a greater menace than overpopulation to the industrial nations. The problems arising from these two fundamental phases of population development are naturally very different.

### *The Problems of Population Pressure*

In Eastern Europe the constant pressure of population on developed resources is still a reality of much greater practical significance than any long-range danger of depopulation. In contrast with the present situation in Western Europe, population growth in this area has had to be absorbed in a backward rural economy. The inevitable result has been increasing pressure of population on the land. Farms have shrunk in size, owing to subdivision of

holdings and the breakup of large estates. The land has been cultivated more intensively, often without increasing yields. Marginal areas have been brought into production to provide a precarious existence for surplus people.

Regardless of future trends, Eastern Europe already faces the fact of overpopulation in relation to developed resources. In the interwar period the region had a natural increase of over 20 million. For lack of adequate alternatives over half of this increase had to be absorbed on the land. Emigration from the area removed less than 10 per cent of the natural increase. Furthermore, more than half of the total migration was from Poland alone, and even this movement was largely restricted to the western and southern sections of that country. There was no general relief of population pressure through emigration.

Migration to towns and cities absorbed a larger share of the total growth than did emigration. In the interwar period urban areas accounted for about two-fifths of the total population growth, largely as the result of rural-urban migration. The few large cities of the region grew rapidly in the interwar period. Migration to the towns thus offered some outlet for the expanding rural populations. Before the war it gave promise of becoming increasingly important as a solution to agrarian overpopulation, for industry and commerce were gaining a foothold in the region. Nevertheless, something like 12 million persons were added to a rural population in a generally non-expanding farming area. Except in a few local areas the new land brought into production in the period was sub-marginal.

The extent of pressure on the land is suggested by the average number of persons engaged in agriculture per square kilometer of cultivated land. In France the figure is 33 (Figure 51). By contrast, it is 54 in Poland, 57 in Roumania, 61 in Greece, and 63 in Yugoslavia. In Bulgaria, where there are no large estates, the figure reached 66, twice that of France.<sup>1</sup>

The greater density of agrarian population in Eastern Europe logically leads to the expectation that these areas should have higher crop yields per hectare as the result of more intensive

<sup>1</sup> League of Nations. European Conference on Rural Life, 1939. *Population and Agriculture, with Special Reference to Agricultural Over-population*. European Conference on Rural Life Publications, No. 8. Geneva, 1939, p. 14.

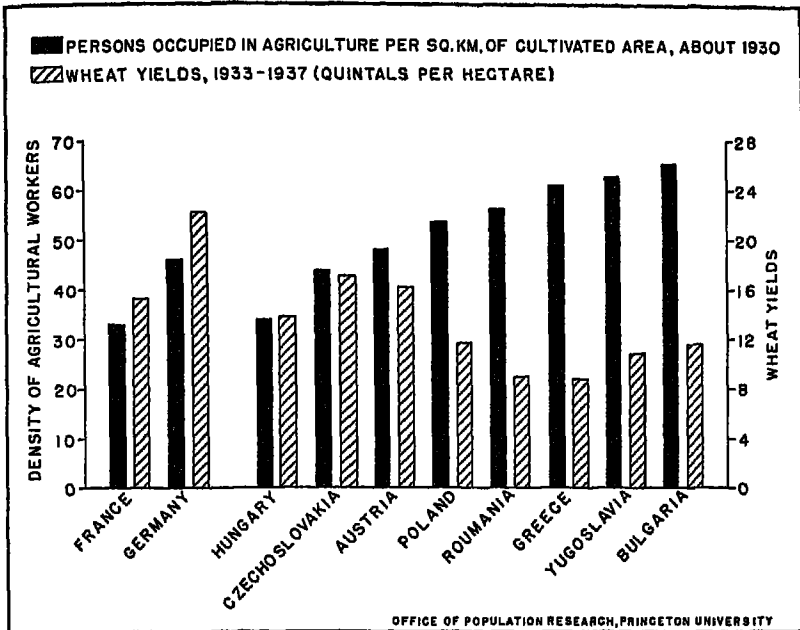


Figure 51. Agricultural workers per square kilometer, and wheat yields: France, Germany, and countries of Eastern Europe.

cultivation. Exactly the opposite is the case. A comparison of agricultural densities and wheat yields in Figure 51 illustrates the situation with regard to grains and agricultural production in general. Although the concentration of labor on the land is much higher in Poland and the Balkans, yields per hectare are markedly below those of France and particularly of Germany. The productivity of agricultural labor is two or three times as great in France and Germany as it is in most of the Balkans and a large part of Poland.

The most backward areas of Eastern Europe, with the lowest crop yields and often the greatest crowding on the land, are at the same time the areas of most rapid natural increase. There is a strong negative association between material welfare and population growth, with the result that, in general, the areas of most acute population pressure are also those in which the prospect of even greater pressure is almost certain. It has been estimated that the withdrawal of a third of the agricultural population in some

areas would not curtail, and indeed might increase, the total agricultural production. Whether this judgment is true or not, it is at least evident that vast numbers could be transferred from agriculture without seriously reducing agricultural output. The region has obviously made ineffective economic use of a substantial fraction of its prewar population.

It is in this overcrowded agrarian region that the projections suggest an increase of 20 million persons of working age between 1940 and 1970. War losses will undoubtedly reduce that increase, drastically in some sections. Probably they will do so without changing the essential nature of the problem; smaller increases will have to be met with depleted resources. It is safe to conclude that the hope for rising levels of living and for peace in this politically unstable region involves the solution of its immediate problems of population pressure.

Despite the great difficulty of its problems and despite its poverty and backwardness, in some respects Eastern Europe was on the way to solving its problems before the war. In the face of rigid trade barriers and economic fragmentation associated with attempts at autarchy in absurdly small areas, industry and commerce were, nevertheless, obtaining a foothold. Increasingly the cities and towns were providing an alternative to the grinding life *of peasantry on holdings too small to furnish an adequate living*. Urban populations were growing rapidly. Education was providing the knowledge for some visible improvement in the utilization of existing resources. Better knowledge of health and nutrition was improving the physical well-being of the people, as evidenced by the falling death rates. By most material standards progress was being made.

Nevertheless, population pressure is an immediate problem, destined to become harsher if no further economic and demographic solutions are to be found. This problem is often approached by learned but essentially futile discussions of "overpopulation." But the realistic problem is not whether there are too many people in any ultimate theoretical sense. The fact of existing pressure of population is adequately demonstrated by small product per person. Future growth of population threatens to increase such pressure. For practical purposes in Eastern Europe, "overpopulation" does not mean that there are too many

people in any different sense than it means that there is too little product. It can be relieved by reducing population or by increasing product, or both.

As an economic problem, agrarian population pressure in Eastern Europe does not differ from that in Western countries in their earlier period of industrialization. Its solution seems to lie in a similar economic development, the elements of which were (1) rationalization of agriculture, (2) industrialization, and (3) emigration. In Western Europe the rationalization of agriculture provided increased agricultural productivity at the same time that growing industry was drawing people from the land. Social changes incident to industrialization and the growth of cities set in motion the processes that ultimately checked population growth. Meanwhile heavy emigration also afforded immediate relief in the most acute stages of growth by removing candidates for jobs and potential parents. Probably all of these measures will be required in some degree in Eastern Europe, stripped, it is to be hoped, of their cruder hardships.

*Emigration.* Extensive migration is the most immediate method of reducing numbers and hence of solving the demographic problems of Eastern Europe. However, the importance of migration in the postwar scene can be only a matter of speculation. A period of chaos might induce a mass exodus of disillusioned people overseas, or, possibly, to the expanding regions of the Soviet Union. Such a movement naturally implies the absence of effective political barriers. With more orderly conditions there are reasons to believe that migration from Eastern Europe will be less important than it was in Western Europe during the latter part of the nineteenth century. A postwar order that leaves political tensions unresolved in the East might well bring strong incentives to emigrate, but these would probably be blocked by legal barriers to free movement erected by both sending and receiving countries in Europe. Eastern European governments would be reluctant to permit the mass exodus of their chief military asset, young men, more particularly because they are the section of the adult population that will grow least rapidly. If there is general confidence in a period of peace and economic prosperity, the barriers to migration might be lowered, but the incentives to move would also be weakened. In these circumstances there might be some immigration of techni-



cians coupled with a numerically larger emigration of laborers and peasants. However, mass emigration would scarcely be expected.

Moreover, from the point of view of the homeland there is little to commend emigration, except as a temporary expedient for the relief of population pressure. As a long-run substitute for reduced natural increase, it is at best a costly process by which the homeland bears the burden of rearing and training children, only to lose them as they enter productive life. Economically it amounts to a large export without other return than relatively minor remittances. Even so, in a situation of heavy and rising population pressure and the absence of other alternatives, emigration undoubtedly is desirable. The loss of workers helps to maintain per capita productivity by checking the subdivision of holdings and the utilization of inferior lands, and in the long run may further check growth by removing potential parents. Within Eastern Europe there are many areas unsuitable for economic development that would benefit from a heavy exodus of population, pending the gradual adjustment of natural increase. Indeed, in the absence of other alternatives, substantial emigration from Eastern Europe would be economically advantageous to that region.<sup>1</sup>

Fortunately, there are alternatives to emigration for the relief of population pressure. The release can also be obtained by increasing product. In fact, the increase of product was vastly more important than emigration in relieving pressure in Western Europe, and it is almost certain to be so in the East. Large gains can be made with improved agricultural techniques, for yields per hectare, and especially per person, are pathetically low. Nevertheless, the rationalization of agriculture cannot alone solve the demographic problems involved. The populations are too large to be employed effectively with the resources available. Moreover, the perpetuation of peasant values would tend to support the birth rate and further extend the period of population growth.

*Industrialization.* Rapid industrialization is needed if the grow-

<sup>1</sup> The case is sometimes made that emigration does not reduce growth because it merely permits a drop of the death rate, or a rise of the birth rate. The argument has merit in situations where the decline of fertility has not been established. However, in Eastern Europe birth rates, though high, are falling very rapidly. In the long run it is doubtful that the decline would be speeded by impoverishment. On the contrary, prosperity would probably do more than anything else to inculcate those social values out of which the small family system develops.

ing labor force is to be used effectively. Despite limited resources for heavy industry, a very considerable measure of industrialization is possible but it will require many changes. It will need a rapid extension of modern education, coupled in the earlier stages with the attraction of outside personnel with technical and managerial skills. It will involve the development of cities and of improved communication and transportation. It will be facilitated by larger areas of relatively free movement of people and of goods within the region. In view of the unequal distribution of natural resources, migration within the region may well prove of greater importance than emigration. Larger trading areas are patently desirable. Finally, and most of all, industrialization will require capital equipment.

In Western Europe the process of capital formation was gradual and relatively painless. In Eastern Europe, where the populations are increasingly conscious of the easier life in other regions, faster processes are required. Capital requirements can be met only by withholding from personal consumption or by borrowing. In the Soviet Union, facing much the same need for quick capital as now exists in other Eastern European countries, the production of consumers' goods was restricted on behalf of capital goods to the temporary but acute disadvantage of the people. In a less direct and less effective manner, the smaller nations of Eastern Europe were following the same policy through subsidies and tariffs favoring industry. Perhaps, if necessary, they could utilize the drastic methods of forced saving applied in the U.S.S.R., which inevitably involve hardship when the per capita income is low.

Borrowing, on the other hand, may involve relatively small burdens. Loans can be repaid from the products of new and more efficient industries. From the point of view of the people of Eastern Europe, equity capital or loans available on reasonable terms would certainly be the preferred means of obtaining capital, and an inflow of capital that yielded greater economic opportunity would be vastly preferred to an outflow of people. In the existing circumstances the two processes stand in complementary relationship. People may be moved to capital or capital to people. In Eastern Europe, at least, the latter is the simpler process, though both may prove desirable.

A world in which the nations are preoccupied with their power

positions is not likely to favor substantial loans or capital exports. However, in a world having reasonable prospects for economic and political stability, a large flow of capital to Eastern Europe may well take place. Such a movement may prove beneficial to the creditors quite apart from the return on capital invested, for it would raise the level of living, and therefore the purchasing power, of the countries importing foreign capital. It would also facilitate the trend toward lower fertility and thus prevent increasing population pressure in the future. Without such developments the mounting pressure of population on resources in this politically unstable region will be a constant threat both to the prosperity and to the peace of Europe.

Southern Europe does not have such acute economic problems as Eastern Europe because it has progressed somewhat further in economic and demographic evolution. In Catalonia and especially in northern Italy industry and commerce are already well advanced. Correspondingly, the rates of natural increase are those of Western and Northern Europe and these areas enjoy a higher level of living than prevails in the rural areas of the region and of Eastern Europe. Some outlet for surplus population has been found in neighboring France. Nevertheless, in southern Italy and in much of the Iberian Peninsula agrarian population pressure is as serious as in the Balkans. In these cases comparable solutions must be sought, though in Italy and Spain the problems are more national than international in scope and their solution is not so much encumbered by the difficulties of extreme ethnic heterogeneity as it is in Eastern European countries.

Though until very recently Russia has been quite as backward as the countries of Eastern Europe, and though she has not yet displayed so clear a trend to declining rates of population growth, she has ample resources to take care of her huge population. Given political stability and an opportunity to recover from the war, the Soviet Union should have no difficulty in attaining a rising standard of living, even with a very rapidly growing population. The development of industry, the rationalization of agriculture, and the consequent flow of millions from farm to city are speedily dissolving problems of agrarian overpopulation. The inertia of past population trends (e.g., as reflected in the age distribution) will unquestionably result in rapid growth, perhaps even for a gen-

eration, but it seems reasonable to suppose that, despite differences in political ideologies, urban influences and a rising level of living will ultimately bring about slower population growth. In any event, the prospects for economic development would seem to be adequate to care for the population growth to 1970 indicated by the projections.

### *The Problems of Population Decline*

In many respects the demographic problems of Western Europe are more difficult than those of Eastern Europe because they are new. Western Europe must follow an uncharted course in adjusting a dynamic economy to an aging and perhaps declining population. Even the nature of the problems involved is not entirely clear. Some of them have been suggested in Chapters V-VII; others have been the subject of speculation in terms of economic theory. Whatever the economic effects of the trend toward decline, it seems certain that at some stage social and political considerations will impel action to check it. Conceivably, higher levels of material and physical well-being could be attained with substantially smaller populations than now exist in Northwestern and Central Europe. The nations of a politically secure world might even adopt policies designed to achieve a gradual reduction in numbers. But in the long run the trends of the interwar period and those projected here are suicidal. It is unrealistic to suppose that nations will become aware of that fact without taking steps toward at least their gradual reversal.

There are three methods of checking population decline. Losses may be replaced by immigration, numbers may be maintained somewhat by saving the lives of those already born, and finally, population may be increased by additional births. Each of these means probably will be used to alter the trends projected in this report.

*Immigration.* In many respects immigration is the simplest method of averting depopulation. To the receiving country it has a number of important economic advantages over obtaining population from increased births in the home country. Migrants provide human capital free and at once. The rearing and education of children is a costly and time-consuming method of obtaining a labor force. Immigrants bring their services to the new country

unencumbered by the social investment involved in raising them to adulthood. In Northwestern and Central Europe migrants could fill immediately the large gaps in the younger labor force left by war and past declines in fertility. To the extent that such migration was one of young males, it would tend to restore the balance of the sexes, thereby more than proportionately increasing the supply of potential parents. In these respects immigration would appear to be a highly desirable means of staving off population decline.

There are other and less acceptable aspects of large-scale immigration, even granting the desirability of forestalling a population decline and the fact that immigration is a cheap way of doing so. Except under conditions of full employment or in a managed economy, it is difficult to absorb a large number of immigrants. Moreover, the problems of the economic integration of large groups with alien speech, religion, and culture are small compared with those of political and cultural integration. Nations seeking to avert population decline to protect their economic position may be willing to accept immigrants, but they can be expected to be circumspect about it. If the object is to insure the survival of their own cultural and political identity, the substitution of alien for native population scarcely suffices. Immigration, itself, is likely to *increase concern about depopulation*. In France, for instance, the influx of foreigners, and the threat that they were presumed to represent both to the security and the cultural solidarity of the nation, convinced many Frenchmen that active measures must be taken to preserve the French people from extinction and foreign inundation. The larger the migration and the slower the indigenous growth, the greater the concern about the assimilation of alien groups is likely to become. Unless the forces of nationalism are much weakened after the war, Northwestern and Central Europe is unlikely to accept large-scale immigration.

As was indicated in Chapter V, migration would have to be on a very large scale to counterbalance regional differences in rates of growth. Equalization of the projected rates of growth in Northwestern and Central Europe as compared with Southern and Eastern Europe would require a movement of about 9 million people westward between 1940 and 1955 and about 19 million between 1940 and 1970. Such a volume of migration is not impossible. The

movement overseas from Europe to America prior to the last war was on this scale. However, it seems most unlikely that either the receiving or sending countries would welcome so large a movement, even if economic inducements were sufficient to attract it. Some migration may be regarded as desirable for both Western and Eastern Europe, but it will probably be insufficient to equalize the divergencies in their population trends. Policies directed to checking population declines in Northwestern and Central Europe are more likely to be centered on efforts to conserve the native population by reducing deaths and increasing births.

*The Reduction of Mortality.* The reduction of peace-time mortality, no matter how important in the past and however desirable from the humanitarian point of view, can have little further influence on future growth in Western Europe. As has been indicated, in many countries, even if all deaths at ages under 50 were eliminated, the population would still fail to replace itself at prewar fertility rates.<sup>1</sup> Though progress remains to be made, in the more advanced countries the great gains in mortality at the younger ages are in the past. In countries like Sweden and the Netherlands, the possible future gains in infant mortality, for example, are only a small fraction of those already made. In these countries the infant mortality of 1939 was below 4 per cent of the births. In Roumania, by contrast, and in the Western countries two or three generations ago, up to 20 per cent of the infants died in the first year of life. Elimination of all infant deaths in Western Europe, patently an impossibility, would bring small gains as compared with those already achieved.

It is true that substantial progress remains to be made in the reduction of mortality even in Western countries, simply by the application of existing knowledge. The least progress has been made in the mortality of middle and old age. If means are quickly found to prolong life far beyond the traditional three score years and ten, population decline might be long postponed by this means alone. But this would be achieved at the price of populations weighted much more heavily in the upper ages than those indicated in the projections. It would avert depopulation only in a technical sense, since the problems would be much the same. Furthermore, numbers would be maintained only temporarily. Regardless of

<sup>1</sup> See Chapter I.

medical achievements, the aged must ultimately die. If reproduction ratios are insufficient to replace the existing population in the reproductive ages, the population will ultimately decline in spite of medical feats in promoting longevity. Among certain countries included in the Western regions, such as Hungary and Czechoslovakia, reductions of mortality may be expected partially to counterbalance fertility declines. These changes have been assumed in the projections on the basis of previous Western experience. But if fertility rates continue to decline, a point is reached when no amount of saving of lives can prevent ultimate depopulation. In the immediate prewar years that point had been passed in several Western countries and was not far distant in all of them.

*Population Policy.* Unforeseen achievements in reducing mortality after the war will almost certainly be insufficient to allay the fears of Northwestern and Central Europe regarding its demographic situation. Migration may considerably alter the populations projected for the region in this report, but it is not likely to reverse the general nature of the trends and, as was pointed out above, is still less likely to reduce public concern over the failure of the home population to reproduce. Consequently, measures calculated to raise the birth rate seem certain to be considered with renewed seriousness after the war. Efforts in this direction have already been made in France, Germany, and Sweden, and on smaller scales in other countries of the region. In Southern Europe, Italy and Spain have adopted population policies. Such efforts may not only alter the projected demographic situation, but may also have far-reaching social, economic, and political results.

Whatever the policies adopted, they will have to be strong to overcome the drift toward declining numbers. It will be recalled from the discussion of Chapter I, particularly that relating to Figure 9, that the downward trend cannot be avoided simply by checking the decline in fertility. In the face of shrinking numbers of potential parents, births can remain constant only if fertility rates rise progressively. It will also be recalled that stationary populations cannot be maintained just by maintaining the number of births; the number must increase to offset forthcoming rises in deaths that an aging population makes virtually inevitable. In other words, the maintenance of a stationary population requires increases in the size of family to offset both rising deaths

and smaller parental stocks, which the war losses will further deplete. Such increases would have to be substantial and continuous, and be made in the face of powerful social and economic factors tending to depress fertility.

In the past, pro-natalist policies have been attached to programs of economic security, and, if we may judge by the Beveridge Report in Great Britain, they are likely to be in the future. Such programs suggest belief in the possibility of increasing the size of families by removing the most serious economic disabilities of parenthood.<sup>1</sup> However, all attempts to relieve the economic burdens of parenthood and to encourage childrearing through the assurance of economic security must face the fact that only an economic revolution would make it financially "worthwhile" to have children. As one author puts it, thus far the nations, democratic and totalitarian alike, have been trying to "buy babies at bargain prices."<sup>2</sup>

There can be little doubt that economic provisions must underlie any successful program, if for no other reason than the protection of children. However, it is doubtful that programs confined to the removal of the economic disabilities of parenthood can succeed. The fact is that the classes in the most favored economic positions are the very ones that have the fewest children.<sup>3</sup> In our world fertility is inversely correlated with economic "success." Apparently, it is not lack of income that is the economic deterrent to larger families, but the magnitude of the expenditures required to support them in accordance with modern standards. These standards, the lists of goods and services for parents and children that now take precedence over the additional child, have grown rapidly in a society that sets great store on the welfare of the

<sup>1</sup> The importance of such policies is admirably set forth apropos of the Swedish policies in: Myrdal, Alva. *Nation and Family: The Swedish Experiment in Democratic Family and Population Policy*. New York, Harper and Brothers, 1941. 441 pp.

<sup>2</sup> Glass, David V. *Population Policies and Movements*. Oxford, Clarendon Press, 1940, p. 871.

<sup>3</sup> The chief exception to this rule is in a few cities, notably Stockholm, where the fertility of all classes together is less than one-half that required to maintain a stationary population. There is also some tendency in other regions for marital fertility of the highest income groups to be above that of the middle ranges, but the difference is more than cancelled by differences in the proportion that marry. These exceptions occur only in populations reproducing far below the replacement level.



individual and on his opportunity to "succeed." New wants range from those for adequate housing, diets, medical care, and schooling, to the frivolous requirements of social competition. There is some evidence to suggest that in the economic hierarchy such wants increase more rapidly than income, so that the felt pressures, the real economic deterrents to larger families, are greater in the middle income groups than in those with smaller incomes and lesser aspirations.

If the whole population is moving toward the set of values held by the most prosperous classes, and that would appear to be the general hope and expectation, the motives for childrearing may be weakened rather than strengthened. Programs of economic security, rightly directed to the health of children and their preparation for useful citizenship, may serve to raise the aspirations more than they lighten the burden of parents. Unless carefully designed, they run the risk of becoming endeavors to reverse the trend of fertility by accenting those same values that were initially responsible for the decline. So far as increasing fertility is concerned, pro-natalist policies based strictly on the relief of economic burdens of parenthood can at best be expected to influence cases near the margin of choice; at worst, to bring a strengthening of the trend toward lower fertility.

Recognition of the inadequacy of economic provisions is responsible for the importance attached to public education in the various programs. In the Swedish plans, great stress is laid on the need for instruction directed toward creating new interest in children and the home. However, there is insistence that such instruction be confined to stressing the personal advantage of larger families to parents and children. Any attempt to urge larger families as a duty to the state is thought to be incompatible with the individualistic ideals of a democratic society. The state's duty, it is insisted, is to provide a social situation in which parents, following their own and their children's interests, will choose to have families adequate to the maintenance of the group.<sup>1</sup>

Nations less scrupulously determined to maintain the primacy of the individual with respect to the state have taken full advantage of popular concern about national depopulation. Such public in-

<sup>1</sup> Myrdal, Gunnar. *Population: A Problem for Democracy*. Cambridge, Harvard University Press, 1940. Chapter VII, pp. 174-213.

terest, governmentally inspired and supported by other measures, may prove quite effective. Direct governmental appeals to patriotism may not be nearly so influential as more subtle social pressures placing an unfavorable onus on couples who are "shirking their responsibilities." A stimulated social pressure can be reinforced by enhancing the position of families with several children through favoritism in public housing, recreational facilities, and education, which, even though separately not of much consequence, all serve to emphasize an invidious distinction regarding the relative social merits of large and small families.

It must be recognized that the effectiveness of social pressure toward having children will depend in part on a growing awareness of the importance of the group and of its survival. Even with favorable mortality the maintenance of a stationary population would require more than one-quarter of the married women to have four or more children.<sup>1</sup> It is difficult to imagine the circumstances that would elicit voluntarily such a proportion of large families in urban societies stressing the importance of individual comfort and independence to the exclusion of the welfare of the group. Quite apart from economic considerations, the nuisance value of large families is too high in such societies. Successful pronatalist policies need, and themselves will stimulate, the development of group consciousness, as opposed to the emphasis on the individual. The growing concern for biological survival will probably tend to strengthen the forces of nationalism. In the past, at least, conservative and nationalistic forces have been in the forefront of those groups demanding governmental action to check "race suicide." In the future, fear of depopulation is likely to prove an even more powerful weapon for nationalistic groups.

Measures enhancing the prestige and bolstering the economic position of larger families may be and have been coupled with those of a repressive nature designed to check the voluntary control of fertility. However, the effectiveness of repressive measures alone can easily be exaggerated. In the absence of changed motivations they tend to antagonize the citizens of low fertility regions, and are virtually impossible to enforce. In populations with relatively high fertility, or in the presence of changed motivations, they

<sup>1</sup> Osborn, Frederick. *Preface to Eugenics*. Harper and Brothers, New York, 1940, pp. 193-206.

may have, in fact have had, substantial results. If strong and inspired social pressures toward high fertility are combined with relief from some of the economic disadvantages of parenthood under urban conditions, and the whole is supported, in an atmosphere of resurgent nationalism, by measures designed to restrict voluntary control of fertility, it seems likely that births could be raised to levels substantially higher than those at the end of the interwar period. Under these circumstances the populations in ages affected by postwar births would differ entirely from those projected in this report.

In view of the many opposing forces, it may be concluded that a new era of growth in Northwestern and Central Europe could be expected, if at all, only from such a drastic combination of policies as that mentioned above, a combination consonant exclusively with totalitarian ideals. Moreover, even such a program would fail in an ultimate sense. Its real object could only be to forestall, as a kind of demographic armament, the sort of changes in the national and regional balance of population suggested by the projections of this report. Such attempts at demographic armament would doubtless spread, and in competition with populations more favorably situated for growth the nations of the West would almost inevitably lose. The results of a nationalistic race for babies can be predicted with some certainty to mean lower levels of living, heightened political tensions, and ultimate conflict.

The fact is that the nations of Northwestern and Central Europe are at the end of their period of population growth. Other peoples will increase more rapidly, and the spread of industrial techniques will bring them growing power. Successful policy depends on the recognition of that fact. It means that security less than ever is to be obtained by international competitions in breeding, and more than ever turns on effective cooperation. It means that the shifting balance of world population will put new strains on fixed economic and political arrangements; that neither justice nor peace can be maintained unless orderly ways are found for adapting such arrangements to the needs of a changing world. Practically, it means that carefully integrated demographic and economic policy must be directed toward relieving mounting population pressures at their source.

In the domestic field population problems will be of increasing,

perhaps major, political importance.<sup>1</sup> If it is clear that the nations of Northwestern and Central Europe cannot hope to regain their former growth, it is equally clear that they will not idly contemplate their own extinction. Sooner or later every nation will seek to regain levels of fertility that will maintain a stationary population, although possibly a smaller one than the present. The major problem in attaining levels of fertility capable of maintaining a stationary population is not that of finding effective means. Instead, it is that of finding means compatible with the welfare, dignity, and freedom of the individual. These means probably will not be easily found, nor, since they must include public education, are they likely to be quickly or spectacularly effective. If the problems are carefully approached, it must be expected that the essentials of the situation projected in this report will not be greatly altered, but that the declines in child populations will be somewhat more gradual than those suggested. Success in that direction will be assisted if the peace re-establishes a feeling of political security and of hope for the future. However, it seems likely that success can be achieved only if the way is found to reconcile the essence of individualism with a strengthening of group loyalties and a new interest in group perpetuation. The goal of population stability rather than that of renewed growth will contribute to such a reconciliation. With it, pride in competitive national dominance may give way to pride in culture and civilization.

Narrowly conceived, the demographic problem of Northwestern and Central Europe is to find the new vital balance, to demonstrate that efficient human reproduction by means of low birth and death rates is compatible with survival. Broadly conceived, its problem is that of adapting its institutions—social, economic, and political—to function in the absence of growth to which they have been adjusted; to prove for the world that neither growth, nor size, but the efficient adaptation of people to resources is a prerequisite for human welfare and a rich culture.

Viewed in the perspective of past accomplishments, the coming population problems of Northwestern and Central Europe seem relatively simple. The region has successfully overcome the greatest obstacle in obtaining freedom from the grinding poverty and

<sup>1</sup> Myrdal, Gunnar. *Op. cit.*

tragically wasteful processes of reproduction that Malthus deemed laws of nature. It is to be hoped that other areas of the world will be able to follow that example. In a stable and secure world, Southern and Eastern Europe and the Soviet Union seem destined to do so. Overseas, in the areas peopled from Europe, this process is already well advanced. Even in the crowded Orient, with its completely different cultural background, there is evidence (e.g., in Japan) that modern influences have set in motion the forces that produced the favorable relation between population and resources in the West. In a politically stable world and an era of cooperation these forces should ultimately bring about the possibility of freedom from want throughout the world. In a world of reaction, in which governments pursue a policy of economic and demographic armament, even Europe will not be free to enjoy the new vistas of living for the common man that have been opened up by the material achievements of the Western World.

## APPENDIX I

### METHODOLOGICAL NOTES

As pointed out in the text of Chapter I, the most difficult methodological problems in the construction of population projections under present assumptions are those involved in projecting age schedules of mortality and fertility. The schedules must be appropriate to the basic assumptions that the vital trends in the period under consideration will be orderly extensions of those of the interwar period, and that for present purposes the demographic effects of the war may be neglected. Within these assumptions, the methods must incorporate, in so far as possible, the results of past experience and sensible reasoning, and, to insure comparability, they must be systematically applicable to the experience of every country considered. The following notes cover only technical matters lightly touched upon in the text, and should be read in connection with that discussion.

#### *Mortality*

The first problem was to secure for each age-sex class probabilities of death ( ${}_nq_x$ ) at quinquennial time intervals from the mid-point of the first five-year period subsequent to the base census to the date required to obtain a population for 1970. From such rates, survival ratios are easily computed and applied to the appropriate populations in order to advance them five years in time and age.

The discussion in Chapter I develops the argument to the statement that "... life-table death rates were used to derive curves that describe the average course through which mortality has moved from high to low in European experience since 1870."<sup>1</sup> However, the text does not describe how the curves were obtained. The method and its application are illustrated in Figure 52, which shows the procedures involved in projecting the probability of death for males between exact ages 30 and 35. Similar procedures were used for the other age-sex groups.

The essence of the procedure was to rank all of the available rates from high to low, irrespective of the dates to which they refer, to divide them into segments to which straight lines were fitted, and to connect the segments. The initial step was the location of origins for the first and last segments. The first origins were taken at convenient points such that they were exceeded by at least one observed value for each of three countries. In the example shown in the upper panel of Figure 52, the origin was taken as 475, which was exceeded by the rates for Germany and England and Wales as of 1875.5 and Switzerland as of 1878.0. The origins of the last segments were taken at points such that: (1) there were at least five lower observed rates, (2) these lower rates were drawn from the experience of at least two countries, and (3) among the lower rates those for

<sup>1</sup> See p. 28.

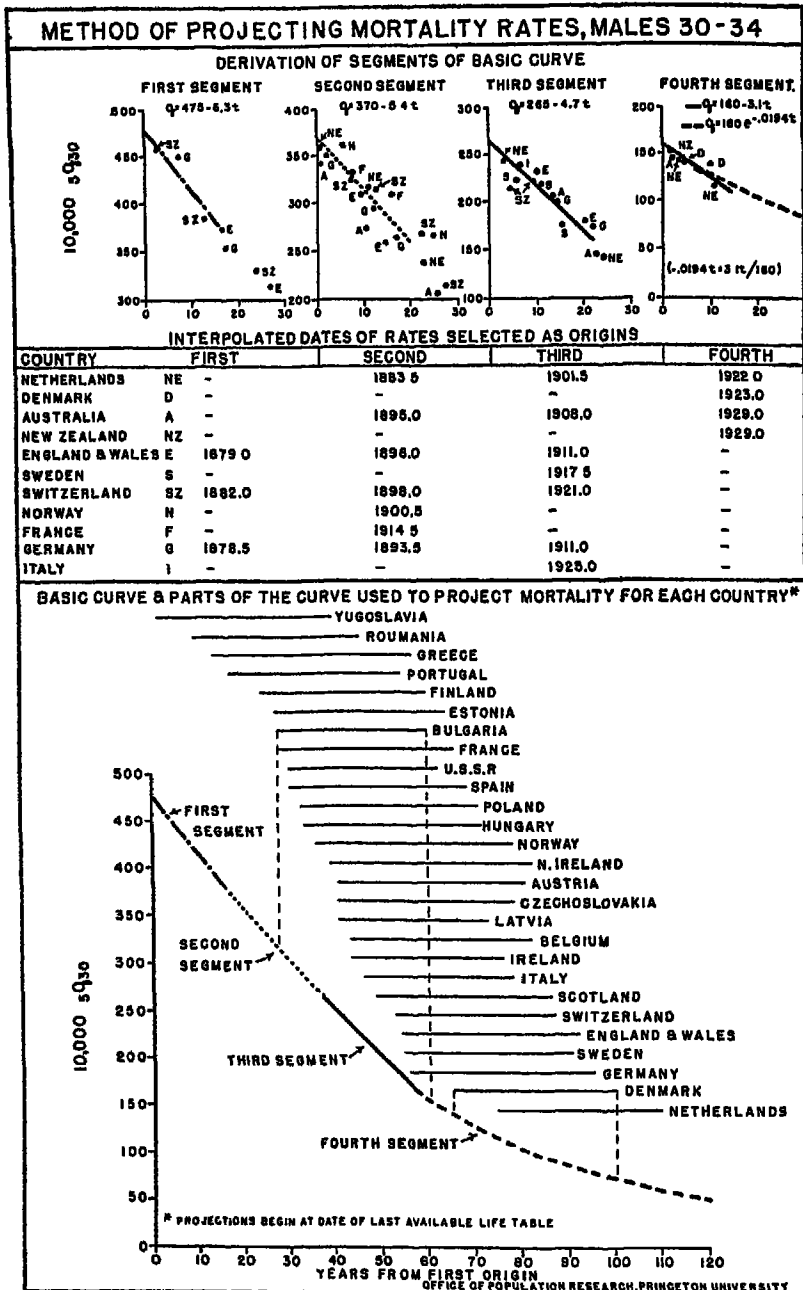


Figure 52. Illustration of the method of projecting mortality rates: males 30-34 years of age

at least one country appeared twice at an interval of at least five years. In this instance, the value was taken as 160, below which there were six observed values drawn from the experience of four different countries, and beyond which the experience of one country, the Netherlands, occurred twice at an interval of ten years. The intervals between the first and last origins were divided into three or four equal segments, whichever seemed desirable to avoid over-long segments. In this instance three segments, prior to the final origin, were used with the origins at 475, 370, and 265, respectively. Experimentation showed that the use of larger numbers of segments would have resulted in inconsequential differences.

The line for the first segment was obtained as follows: The date at which the rates for each country may be thought of as passing through the first origin was obtained by arithmetic interpolation of the next higher and next lower values. The series of values for each country was entered with the dates expressed as deviations from the date of origin. The series included all the rates relating to peace-time experience through the ones falling next below the second origin. Straight lines through the origin were fitted to all such data by means of least squares. The lines for the subsequent segments up to the final origin were obtained in a similar manner.

The final segment involved a different procedure, since it was used to extend the experience beyond any value thus far observed. The first step was to obtain a straight line as before. If this line were used for extrapolation, it would involve the assumption that mortality rates will decline by the same amount each year indefinitely and ultimately assume negative values. Therefore, an exponential curve was used to keep the proportion of the decline, rather than its amount, constant, the proportion used being that of the straight line at the origin. In Figure 52 the straight line has a value of 160 at the last origin and a decline of 3.1 per year, giving a proportionate decline of  $3.1t/160$  or  $.0194t$ . The equation of the exponential is therefore:  ${}_tq_{30} = 160e^{-.0194t}$ .

The lines for the segments, for which the formulas are presented in Table 9, were joined to form continuous curves such as the line shown in the bottom panel of Figure 52. This line may be thought of as representing the average course through which the risk of dying between ages 30 and 35 has moved from high to low for males during peace-time experience in Europe. For reasons given in the text, it is taken as the course through which the risk of death is likely to move in the future under present assumptions.

Mortality rates were projected by locating on the curve the value given in the most recent available life table, and reading forward at appropriate intervals. In the chart the horizontal lines lie above the section of the curve used to project the rates for the countries named. For example, in the case of Bulgaria, the population census used as a base related to January 1, 1935 (technically December 31, 1934). Projections of popu-



TABLE 9

Formulas for Mortality Projections (10,000<sub>nqx</sub>): Males

Age x to x + n	First Segment	Second Segment		Third Segment	
	10,000 <sub>nqx</sub>	Years 1st to 2nd origin	10,000 <sub>nqx</sub>	Years 1st to 3rd origin	10,000 <sub>nqx</sub>
0-1	1750-26.0t	11.5	1450-30.5t	21.3	1150-19.9t
1-5	1000-24.4t	8.2	800-19.6t	18.4	600-16.7t
5-10	350- 9.5t	9.5	260- 5.6t	25.6	170- 2.9t
10-15	200- 2.9t	15.5	155- 2.4t	34.3	110- 1.6t
15-20	290- 4.6t	13.0	230- 2.4t	38.0	170- 2.6t
20-25	400- 5.8t	14.7	315- 4.3t	34.5	230- 3.3t
25-30	425- 5.0t	19.0	330- 4.0t	42.8	285- 3.9t
30-35	475- 6.3t	16.7	370- 5.4t	36.1	265- 4.7t
35-40	550- 7.1t	16.9	430- 6.9t	34.3	310- 5.8t
40-45	640- 7.7t	16.2	515- 7.0t	34.1	390- 6.2t
45-50	825- 5.8t	20.7	705- 8.7t	34.5	585- 6.8t
50-55	1000-10.8t	11.6	875- 7.4t	28.5	750- 7.9t
55-60	1400- 6.5t	26.2	1230-13.6t	38.7	1060- 9.0t
60-65	1875-11.9t	16.4	1680-12.6t	31.9	1485- 9.2t
65-70	2600-16.9t	16.2	2350-14.5t	35.1	2100-12.3t
70-75	3600-14.7t	17.0	3350-14.2t	34.6	3100-14.4t
75-80	5100-14.5t	19.0	4825-25.4t	29.8	4550-16.3t
80-85	6600-15.5t	16.1	6350-21.0t	28.0	6100-14.3t
85-90	8000- 3.9t	31.3	7850-12.5t	37.3	7600- 7.3t
	Fourth but not last Segment		Last Segment		
	Years 1st to 4th origin	10,000 <sub>nqx</sub>	Years 1st to last origin	10,000 <sub>nqx</sub>	
0-1	36.4	850-16.5t	54.6	550e-.0256t	
1-5	30.4	400- 9.9t	52.6	180e-.0211t	
5-10			56.6	80e-.0225t	
10-15			62.4	65e-.0200t	
15-20			61.1	110e-.0191t	
20-25			60.3	145e-.0172t	
25-30			67.2	140e-.0214t	
30-35			58.4	160e-.0194t	
35-40			49.8	220e-.0209t	
40-45			54.3	265e-.0177t	
45-50	52.1	465- 6.5t	70.6	345e-.0130t	
50-55	44.3	625- 5.2t	68.3	500e-.0086t	
55-60	57.6	890- 7.2t	81.2	720e-.0043t	
60-65	53.1	1290- 6.0t	85.6	1095e-.0026t	
65-70	55.4	1850-10.3t	79.7	1600e-.0060t	
70-75	52.0	2850-14.4t	69.4	2600e-.0026t	
75-80	46.7	4275-18.3t	61.7	4000e-.0026t	
80-85	45.5	5850-40.2t	51.7	5600e-.0017t	
85-90	94.7	7400-18.0t	105.8	7200e-.0030t	

TABLE 9 (cont.)

Formulas for Mortality Projections (10,000<sub>n</sub>q<sub>x</sub>): Females

Age x to x + n	First Segment	Second Segment		Third Segment	
	10,000 <sub>n</sub> q <sub>x</sub>	Years 1st to 2nd origin	10,000 <sub>n</sub> q <sub>x</sub>	Years 1st to 3rd origin	10,000 <sub>n</sub> q <sub>x</sub>
0-1	1700-26.6t	11.8	1400-25.4t	23.1	1100-20.3t
1-5	1170-25.4t	9.8	920-21.2t	21.6	670-17.9t
5-10	375- 9.0t	10.4	275- 6.2t	26.6	175- 3.4t
10-15	225- 4.1t	12.2	175- 2.9t	29.4	125- 2.3t
15-20	300- 8.4t	19.1	235- 2.9t	43.2	170- 2.7t
20-25	340- 8.9t	15.4	280- 8.9t	30.8	220- 8.7t
25-30	400- 4.6t	18.0	317- 4.8t	35.3	234- 3.7t
30-35	450- 6.0t	15.0	360- 5.1t	32.6	270- 5.0t
35-40	510- 6.5t	15.4	410- 5.8t	30.6	310- 5.6t
40-45	555- 6.8t	15.9	455- 6.3t	31.8	355- 5.4t
45-50	640- 5.9t	12.7	565- 6.8t	24.6	490- 5.7t
50-55	820- 7.5t	12.0	730- 7.3t	24.3	640- 5.7t
55-60	1130-11.5t	10.9	1005-11.1t	22.2	880- 6.9t
60-65	1650-18.8t	13.5	1470-13.9t	26.4	1290-10.5t
65-70	2600-17.3t	15.9	2225-16.4t	32.7	1950-14.5t
70-75	3570-18.8t	13.3	3225-19.7t	35.3	2880-14.7t
75-80	4500-20.1t	7.5	4350-16.3t	16.7	4200-20.2t
80-85	6000-17.6t	11.4	5800-13.8t	25.9	5600-23.5t
85-90	7600-23.0t	9.8	7375-13.3t	26.7	7150-18.4t
Fourth but not last Segment		Last Segment			
		Years 1st to 4th origin	10,000 <sub>n</sub> q <sub>x</sub>	Years 1st to last origin	10,000 <sub>n</sub> q <sub>x</sub>
0-1	37.9	800-15.1t	57.3	500e <sup>-0236t</sup>	
1-5	35.6	420-10.7t	59.0	170e <sup>-0235t</sup>	
5-10			55.9	75e <sup>-0267t</sup>	
10-15			51.1	75e <sup>-0267t</sup>	
15-20			68.2	105e <sup>-0248t</sup>	
20-25			47.0	160e <sup>-0163t</sup>	
25-30			57.7	161e <sup>-0212t</sup>	
30-35			50.6	180e <sup>-0189t</sup>	
35-40			50.5	210e <sup>-0214t</sup>	
40-45			51.4	255e <sup>-0200t</sup>	
45-50	37.8	415- 4.5t	54.5	840e <sup>-0124t</sup>	
50-55	40.0	550- 3.7t	64.3	460e <sup>-0070t</sup>	
55-60	40.3	755- 5.0t	65.3	630e <sup>-0044t</sup>	
60-65	43.5	1110- 6.7t	70.4	930e <sup>-0033t</sup>	
65-70	51.7	1675- 9.1t	81.9	1400e <sup>-0021t</sup>	
70-75	59.3	2535-10.3t	92.8	2190e <sup>-0021t</sup>	
75-80	24.1	4050-16.4t	33.2	3900e <sup>-0022t</sup>	
80-85	34.4	5400-12.4t	50.5	5200e <sup>-0011t</sup>	
85-90	38.9	6925-22.0t	49.1	6700e <sup>-0032t</sup>	

lation were needed at five-year intervals to January 1, 1970.<sup>1</sup> These projections require  ${}_5q_{180}$  for the mid-point of the five-year intervals. The first value needed was that for 1937.5 (July 1, 1937), which lies 2.5 years beyond the date of the life table for 1935.0, used as a base. This table gave 912 as the 10,000  ${}_5q_{30}$  and that value falls at  $t$  equals 27.4 on the curve. Therefore, the first reading is needed for 29.9 and the subsequent ones at five-year intervals to  $t$  equals 59.9.<sup>2</sup> The projected mortality rate for each country was similarly obtained from this curve, and rates for the other age-sex classes were taken from curves derived in precisely the same way.

It will be noted that the length of time for which mortality projections are required depends on the recency of the life table used as a base. Therefore, the number of years for which mortality must be projected varies from country to country. For this reason, also, the initial values shown in the chart do not relate to the same dates and are not strictly comparable. The unexpected position of some of the initial rates arises in part from this fact, but also because the order of the rates for this age group is not that of all age groups, and because for some countries the base tables are subject to considerable margins of error.

The method outlined above may not yield as accurate projections of mortality as could be obtained if the special circumstances thought likely to be operating in each country were taken into account. On the other hand, any attempt to give weight to the influence of such circumstances runs the risk of incorporating serious errors in judgment and knowledge to the detriment of comparability, which is particularly important for the purposes of this study. The method used has the advantages of incorporating the major generalizations to be drawn from past experience, of permitting a projection for any country within the European range of experience for which a life table can be obtained, and of being systematically and objectively applicable to each country in turn.

The projected age schedules of the probability of death were used to derive five-year age distributions of the life-table populations ( ${}_5L_x$ ), which give the number of person-years of life lived between age  $x$  and  $x + 5$  by a cohort of 10,000 live-born males (or females) according to the specified regime of mortality. Survival ratios computed from these values were applied to the appropriate populations to bring them forward five years in age and time

$$\left[ \frac{{}_5P_{x+5}^{t+5}}{({}_5P_x^t)({}_5L_{x+5}^{t+5})/{}_5L_x^t} \right].$$

Most countries have relatively recent and reliable life tables that could be used as the basis of the projections. However, no satisfactory tables

<sup>1</sup> In all cases projections were made at successive five-year intervals after the census date, rounded to the nearest half-year. If the date of the base census made it necessary, values as of January 1 for years that are multiples of five were obtained by interpolation as the final step.

<sup>2</sup> If, as occurred occasionally, the base value of the life table was higher than any one on the curve, the first segment was extended backward.

were available for the following countries: Albania, Bulgaria, Greece, Lithuania, Portugal, Roumania, Spain, the Soviet Union, and Yugoslavia. Tables for Portugal and Spain were computed directly from published age-specific death rates. In the cases of Roumania, Yugoslavia, and Bulgaria official data were used to construct tables that proved to be obviously defective, the rates being impossibly low in the upper ages. The only available life table for Greece was similarly defective. In these instances somewhat unusual procedures were followed. Inspection of the data suggested that greater confidence could be placed in the death rates for ages under 25 than in those for the remainder of life. New tables were, therefore, based on the values below age 25 in the following manner. Regressions between  ${}_5q_x$  and  $\hat{e}_{10}$  for  $5 < x < 85$  were computed on the basis of the experience of European life tables on which the projection curves were based. The observed  ${}_5q_x$ 's from  $x = 5$  to  $x = 20$  were applied to the regressions to obtain estimated values of  $\hat{e}_{10}$ . These estimates were averaged. The average  $\hat{e}_{10}$  was then used to read  ${}_5q_x$  for quinquennial series of  $x$ 's beginning with age 25. The procedure was checked by applying it to the experience of Poland and was found to give a very close approximation of the official Polish life table. The procedure yields estimates of mortality substantially higher than those officially reported. Unquestionably the results are not highly accurate but they are more nearly accurate than tables based on unadjusted data.

In the case of the U.S.S.R. a somewhat different procedure was followed, the details of which will be set forth in another monograph of this series.<sup>1</sup> In general terms, the life table used was a compromise between that for the U.S.S.R. in 1926 and that of Poland in 1931-1932 such that, when applied to the population, it would yield the reported number of total deaths. In the case of Lithuania it was assumed that the Polish life table of 1931-1932 applied as of 1934. No information at all was available for Albania. It was arbitrarily assumed that the expectation of life at age 10 was 44 years, a figure approximating that for Yugoslavia, and the mortality rates were read from the regressions.

### *Fertility*

The methods of projecting fertility and mortality rates have one common element. In each case the trend projected for any rate was fully determined by its height in the base period. Here the similarity ends, for reasons explained in Chapter I. The fertility rate of each age group was projected on rectangular hyperbolas whose heights were determined by rates of the base periods, in general taken subsequent to 1935, and whose initial slopes, taken as of 1930, came from height-slope relations characterizing European experience in the 'twenties and 'thirties.<sup>2</sup> The following notes deal with the

<sup>1</sup> Lorimer, Frank. *Population of the Soviet Union: History and Prospects*.

<sup>2</sup> Australia and New Zealand were also included, as in the case of mortality, because they have followed European patterns and have excellent statistics.

height-slope relations, their application to the hyperbolas, and some matters concerning the results.

The first problem was to establish the "underlying" height-slope relations of age-specific fertility rates as of 1930. The procedures described below were carried out separately for each age group, except 15-19. Values used in projecting the rates for that statistically unimportant group were those observed in the base period because declining age at marriage has supported the fertility rates and in some instances given increases. For each country having the requisite experience, rates early in the 'twenties and late in the 'twenties, and rates early and late in the 'thirties, were averaged to stand for 1925 and 1935 respectively.<sup>1</sup> One-tenth of the difference was taken as the measure of downward slope in 1930. The averages for 1925 and 1935 were, in turn, averaged to yield "underlying" heights as of 1930. Straight lines were fitted by means of least squares to the height-slope values for all countries having the requisite data. The equations are:

Age Group	Equation
20-24	$y = 1.270 - .0246x$
25-29	$y = 2.125 - .0399x$
30-34	$y = 2.917 - .0662x$
35-39	$y = 3.952 - .0938x$
40-44	$y = 0.600 - .0687x$
45-49	$y = 0.197 - .1057x$

where  $y$  is the slope of the rates in terms of  $x$ , the height, i.e., the fertility rate taken as of 1930; this rate was in the form of average annual births to mothers aged  $x$  to  $x + 5$  per 1,000 women aged  $x$  to  $x + 5$ , obtained as described above. In the projections any given fertility rate of height  $x$  as of 1930 would be extended into the future on a hyperbola having the initial slope  $y$  derived from the appropriate equation above. The means by which the height as of 1930 was determined from the values for base periods later in the decade are described below.

Figure 58 permits a comparison of the slope computed for each height with the actual height-slope values on which the computation was based. The short heavy lines relate to the values of the individual countries; the height at the mid-point and the slopes are those derived as described above. The light continuous lines are drawn so that, for any height, they have the slope yielded by the height-slope regressions. The whole relates to the experience centered on 1930 and is here shown on a temporal scale merely as a matter of convenience. The deviations of the observed values from

<sup>1</sup> Except that for age 20-24 the experience of Poland and Norway was omitted because of the heavy influence of changing age at marriage in the period under review. Several larger countries do not appear because in the period under consideration they did not publish statistics for births classified by age of mother.

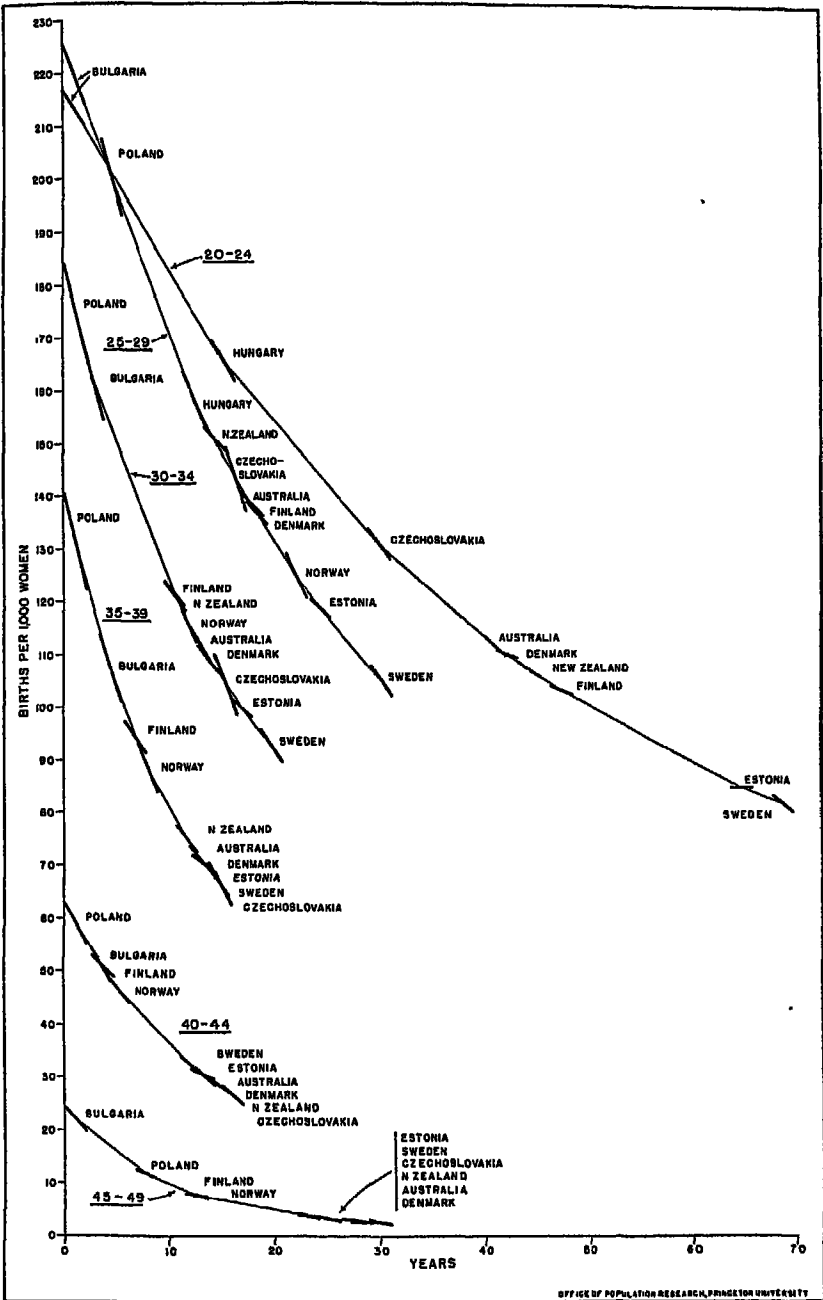


Figure 58. Actual and computed height-slope relations of fertility.

the continuous curves represent the extent to which the actual declines of fertility in individual countries during the 'twenties and 'thirties deviated from the computed general relationship. Obviously the deviations were rather large. Obviously, also, there was a general tendency for high rates to decline more rapidly than low ones in the same age group. It seems probable that under the present assumptions, fertility in the future can be expected to decline most rapidly where it is highest, as it has in the past, but that in the future as in the past, the experience of individual countries will deviate considerably from the general trends on which the projections are based. It is also interesting to note that for any given height the declines become steeper from the young to the old groups, with the exception of age 40-44. This fact is apparent from the coefficients of  $x$  in the above equations.

The next step is to derive rectangular hyperbolas having the initial height-slope relations obtained above as of 1930 and the observed height as of the mid-point of the base period, taken in general subsequent to 1935. Curves of this family were selected as the functions on which to project fertility because: (1) they approach zero asymptotically and hence cannot give negative values, (2) by varying their vertical asymptotes and their curvatures they can be forced to have a particular slope and height at a particular point, (3) they decrease beyond this point at declining rates, (4) they give relatively little crossing of the values in the period with which the projections deal, and (5) they are simple to calculate.

The general form necessary is  $y(t + h) = K$ , or denoting  $y$  by  $F_t$ , the age-specific fertility rate  $t$  years after 1930:

$$(1) F_t = \frac{K}{t + h} \text{ where } K \text{ and } h \text{ are the parameters to be determined.}$$

$$(2) \text{ At } t = 0, F_0 = \frac{K}{h} \text{ and } K = F_0 h. \text{ Differentiating (1) with}$$

respect to  $t$ , we have  $\frac{dF_t}{dt} = -K/(t + h)^2$  and

$$(3) \left. \frac{dF_t}{dt} \right]_{t=0} = -K/h^2 = F_0/-h \text{ from (2).}$$

Let  $r_t$  be the annual proportion of *decline* in fertility at time  $t$ . Then the proportion of *change* at  $t = 0$  is  $-r_0$  and

$$-r_0 = \frac{1}{F_0} \cdot \left. \frac{dF_t}{dt} \right]_{t=0} \quad \text{and}$$

$$(4) \left. \frac{dF_t}{dt} \right]_{t=0} = -r_0 F_0.$$

(5) From (3) and (4):  $-r_0 F_0 = \frac{F_0}{-h}$  or  $h = \frac{1}{r_0}$ . Substituting (5) in (2),

(6)  $K = \frac{F_0}{r_0}$ . Substituting (5) and (6) in (1),

$$(7) F_t = \frac{F_0}{r_0 t + 1}.$$

In order to apply (7) to the projection of fertility,  $r_0$  must be found.

The slope in 1930,  $\left. \frac{dF_t}{dt} \right|_{t=0}$

is determined by the linear relation to  $F_0$ . So

$$(8) \left. \frac{dF_t}{dt} \right|_{t=0} = a + bF_0, \text{ or from (4)}$$

(9)  $r_0 = -\frac{a + bF_0}{F_0}$ . Substituting (9) in (7) we have:

$$(10) F_t = -\frac{F_0^2}{at + F_0(bt-1)}.$$

Since the height is to be determined by experience taken in general subsequent to 1935,  $F_0$  must be derived from the observed value  $F_t$  when  $t$  is the number of years between 1930 and the mid-point of the base period. Solving (10) for  $F_0$  gives:

$$(11) F_0 = \frac{-F_t(bt-1) \pm \sqrt{[F_t(bt-1)]^2 - 4atF_t}}{2}.$$

The root corresponding to the lower sign is rejected and  $r_0$  is found from (9). With values for  $F_0$  and  $r_0$  known, fertility is projected to appropriate values of  $t$  by (7), i.e.,  $F_t = \frac{F_0}{r_0 t + 1}$ .

It follows from the above equation (7) that the proportion of decline becomes smaller as  $t$  (years after 1930) increases, for:

$$\text{If } F_t = \frac{F_0}{r_0 t + 1}, \text{ then } \frac{dF_t}{dt} = -r_0 F_0 / (r_0 t + 1)^2 \text{ and}$$

since  $-r_t = \frac{1}{F_t} \cdot \frac{dF_t}{dt}$ ,  $r_t = r_0 F_0 / (r_0 t + 1)^2 F_t$  or,

substituting  $\frac{F_0}{r_0 t + 1}$  for  $F_t$  and cancelling,



$$(12) \quad r_t = \frac{r_0}{r_0 t + 1}.$$

Also, the ratio of the proportion of decline at the origin to that at time  $t$  equals the ratio of the fertility rates of those dates, for from (7)

$$\frac{F_0}{F_t} = r_0 t + 1 = \frac{r_0(r_0 t + 1)}{r_0}. \text{ Hence from (12)}$$

$$(13) \quad \frac{r_0}{r_t} = \frac{F_0}{F_t}.$$

One of the characteristics desired of the function for projecting fertility was that the crossing of the rates for the various countries should be as infrequent as was compatible with other requirements. The hyperbolas gave very little crossing of the age-specific fertility rates. Nevertheless, they gave a substantial amount of crossing of the gross reproduction rates, more than is readily apparent in Figure 7 (p. 34). The reason is that for any given height the initial declines generally steepened with advancing age. Countries with late marriage have relatively low rates in the young ages and relatively high ones in the old ages. Their projected gross reproduction rates therefore decline relatively rapidly. Countries in which marriage occurs at relatively young ages tend to have the opposite relationships of their rates; hence slower declines of their gross reproduction rates are projected. All things considered, this characteristic of the projections probably is a desirable one.

If the task of constructing projections such as those of this report were to be undertaken again, serious consideration would be given to the use of the exponential curves derived as those represented by the continuous curves of Figure 53. The rationale for their use would have been more clear-cut than that for using hyperbolas. If, as is broadly speaking the case, geographical differences in fertility reflect primarily time lags in a cultural transition, the height-slope relations of fertility observed in a variety of regions during a single base period may be set in order to stand for the general course through which the fertility of any one region may be expected to move in time. This is precisely what the exponential curves do. They are simply those that at any height have the slope given by the appropriate least-square equation for the height-slope relation of fertility in the 'twenties and 'thirties.

The general formula is:  $y = \frac{K^2 e^{bx}}{b} - \frac{a}{b}$ , where  $y$  is the fertility rate;

$K$  is the constant of integration, the value of which merely locates the origin;  $a$  and  $b$  are the constants of the linear equation of the height-slope regression shown above; and  $x$  is the number of years from the origin. When the origin is taken as one year earlier than the highest observed value, as in the chart, the equations are:

Age Group	Equation
20-24	$y = 166.02 e^{-.0246x} + 51.618$
25-29	$y = 173.43 e^{-.0399x} + 53.258$
30-34	$y = 109.76 e^{-.0662x} + 59.169$
35-39	$y = 71.906 e^{-.0938x} + 42.132$
40-44	$y = 45.493 e^{-.0687x} + 8.728$
45-49	$y = 22.269 e^{-.1057x} + 1.865$

The curves were derived after the projections had been completed purely as an illustrative device to permit a convenient comparison of the initial height-slope relation of the hyperbolas with the observed values of the individual countries from which they were derived. Had they been used for the actual extrapolation of fertility, the results would have differed somewhat from those obtained. For example, the number of births in 1965-1969 in Bulgaria would have been one per cent larger; that in France, 1966-1969, 11 per cent larger; and that in Sweden, 1966-1971, 17 per cent larger. By 1970 the total populations would differ from those projected on the hyperbolas as follows: Bulgaria, -0.1 per cent; France, + 1.5 per cent; and Sweden, + 2.2 per cent. The exponential projects slower declines for countries with low initial rates because, unlike the hyperbolas, its lower limit is above zero. Such a positive lower limit has theoretical advantages, for there undoubtedly exists a level above zero below which fertility rates will not fall under any circumstances. On the other hand, the determination of that limit by the extrapolation of a least-square line based on somewhat fragmentary data is at best a dubious procedure. It is equally true that more adequate and ample basic data might show that the relations between height and slope as of 1930 were not in fact linear, hence that a different functional form would flow from the same conceptualization of the problem.

There is no reason to suppose that the results of one method are more reliable than those of the other, or of any number of alternatives equally appropriate to the underlying assumptions. The matter is discussed here only to illustrate the fact that the use of a different, and perhaps more clean-cut, procedure would have given results that differ in detail but warrant the same general interpretation. The writers hope at some future date to examine the application of the alternative procedure to the projection of both mortality and fertility.

By the procedures outlined above, it is possible to project fertility for any country within the European range of experience for which age schedules of fertility can be obtained in the appropriate base period.<sup>1</sup> Age schedules of fertility are not directly available for countries that do not

<sup>1</sup> More precisely, the method is limited to countries to which the height-slope regression of fertility in Europe is appropriate.

publish births classified by age of mother, and the number of such countries is rather large. However, when birth registration is adequate, the age schedules can be estimated by well-known indirect procedures. In principle, the method assumes that the relative shape of the age schedule is that of some country which has a similar ratio of births to women of child-bearing age, and in which the age at marriage and the age composition of the population are not widely different.

More serious difficulties arise because of incomplete birth registration. In each case the number of births was compared with the census counts of the child population after appropriate allowance for mortality. If the comparison showed the registration to be less than 96 per cent of that expected on the basis of the census counts, adjustments were made. The correction is a highly conservative one, because there is the implicit assumption that the census count is complete. From such evidence it was estimated that birth registration was 90.8 per cent complete in Roumania and 95.3 per cent complete in Yugoslavia. Greece was given the same factor as Roumania on a somewhat arbitrary interpretation of internal evidence. No correction was made for other countries. About all that can be said for such factors is that their use gives more accurate results than would the uncorrected data.

It will be noted that in Yugoslavia, Roumania, and Greece correction factors were used for both mortality and fertility, and it is believed that in each case the results are more reliable than they would have been if unadjusted figures had been used. However, since the methods of adjustment of mortality and fertility were independent of each other, there is no way of knowing whether they were comparable. Therefore, it is not at all certain that the differences of the births and deaths obtained from the adjusted figures are more nearly accurate than those obtained from the official figures would have been. The corrections introduced here decrease the age of the populations projected for each country, but yield slightly larger totals for Roumania and somewhat smaller totals for Yugoslavia. However, as was pointed out in the text, the results do not differ so widely as to change the essentials of the interpretation. In general, the results for the whole of Eastern Europe must be taken as more reliable than those for any of the constituent countries, and the results for Roumania and Yugoslavia are particularly open to question.

The base periods from which the heights of the fertility projections were taken varied from one year in the cases of Scotland (1938), Belgium (1939), Roumania (1936), and the U.S.S.R. (1938) to ten years in that of Portugal (1931-1940). In general, however, they were three-year periods, the mid-points of which fell after 1935 in all cases but France (1934-1936) and Spain (1930-1932), and the beginning of which fell after 1935 in all but eight cases. The base period for Spain was taken as 1930-1932 instead of subsequent to 1935 to avoid the period of the revolution. Internal evidence suggests that the Spanish vital statistics are not particularly reliable. Data for the U.S.S.R. were obtained by methods that

differed little in principle from those for other countries, but they had to be assembled from a fugitive literature that prevents careful assessment of their validity.<sup>1</sup> No adequate statistical materials relating to fertility existed for Albania at the time the projections were made. It was arbitrarily assumed that the age schedule of fertility was 105 per cent of that obtained for Yugoslavia as of 1930. In all cases, reported births were used for the years following the base census for which they were available, which meant, with the exception of Albania, at least through 1936, and in many instances through 1941.<sup>2</sup>

#### *The Base Populations and Their Projections*

The base populations used were those of the latest censuses available at the time of computation. Their dates range from 1928 in the case of Greece to 1939 in the cases of Austria, Germany, and the U.S.S.R., but for fourteen of the countries they relate to 1931. In the case of Lithuania special estimates utilizing the census of 1923 and reports of births, deaths, and migration brought the base population up to 1934. In no other case was there any allowance for international migration subsequent to the census. For this reason the figures presented for 1940 in the report and in the tables of Appendix IV differ somewhat from the official estimates available for that date.

The projections require populations classified by sex and five-year age groups. In some instances censuses give different classifications, from which the necessary grouping had to be obtained by interpolation. In the case of the U.S.S.R. rather extensive estimating had to be done. The age classification for Poland excluded the military forces, for whom only total numbers were available. The age distribution of this group was estimated and added to the census age classification. For Albania nothing was available except a figure for the total population. The age-sex classification was made by assuming that its relative distribution was the same as that of the province of Vardarska, Yugoslavia. The published figure for the population total is the only "fact" that underlies the projections for Albania; everything else is estimated. The results are therefore carried only to two significant figures instead of to three as in the other countries. Obviously the margin of error must be very large. In several other cases the age-sex distributions are obviously inaccurate. However, the general patterns seem to be substantially correct.

Given age schedules of mortality and fertility, and base populations classified by age and sex, the projection of the populations by age and sex for five-year time intervals is purely mechanical so long as the effects of the war and of migration over the international boundaries of 1937 are disregarded by assumption. Populations were projected at five-year intervals after the census date (rounded to the nearest half-year) and the results arithmetically interpolated to give values as of January, 1940, and

<sup>1</sup> See Lorimer, Frank. *Op. cit.*

<sup>2</sup> See Notes to Appendix IV.

at five-year intervals to 1970. As must by now be amply clear, the process of obtaining projections for the U.S.S.R. and each European country required repeated and, on occasion, somewhat heroic estimates at a variety of points. It is believed, however, that in view of the purposes for which they are made, and within the limits of the underlying assumptions, the results give a more adequate working model of the effects of recent differential demographic trends than has thus far been available.

## APPENDIX II

### THE HISTORICAL DEVELOPMENT OF POPULATION ESTIMATES

STATISTICAL estimates of future population, as distinguished from speculative discussions, have been possible only since the development of national censuses. Such quantitative estimates may be made either by projecting the course of change in the total population directly, or by projecting separately the component trends of births, deaths, and perhaps migration. The first method, that of the projection of total populations, requires only census data on the size of the population at successive periods of time. The second method, that of projecting the component elements in population change, further requires statistics on births and deaths and, in its more sophisticated versions, census data on the age and sex distribution of the population. Thus only projections of total populations could be made prior to the development of national vital statistics.

#### *Curves of Growth*<sup>1</sup>

Historically, estimates of future population based on the extrapolation of the total population were developed first. The arguments of Malthus, in so far as they had an empirical quantitative base, rested on the extrapolation of rates of growth characterizing the populations of the late eighteenth century, especially those of Colonial America. Such estimates, assuming uniform percentage rates of increase, have been numerous and have formed the basis for many of the pessimistic views of a general overpopulation facing the world. During the nineteenth century, however, Quetelet pointed out that there are necessary limits to the continued growth of population at a geometric ratio, and Verhulst suggested that population growth could be described rationally through a curve of a type that he named the logistic, which possessed the characteristics of proceeding from a lower limit of 0 to a determinate upper limit, with decreasing percentage increases proportionate at any time to the difference between the attained value and the upper limit. Verhulst fitted these curves to available counts for France, Belgium, Russia, and the County of Essex in England, but abandoned the attempt to develop a law of population by this method of analysis because the census counts available were too few for the verification of the formula.<sup>2</sup> There were many other nineteenth century estimates assuming declining rates of growth, including that of Pritchett, who used a third degree parabola to allow for declines in percentage increases.<sup>3</sup>

<sup>1</sup> For a bibliography of population estimates, see Appendix III. The titles have been numbered consecutively, and throughout this discussion reference to a particular source will be by country or author and title number.

<sup>2</sup> Verhulst, Title 85.

<sup>3</sup> Pritchett, Titles 161 and 162. Pritchett was somewhat disturbed by an estimated population for the United States of 40,852,273,000 (over 11,000 per

After World War I, research on the numerical aspects of population composition and change was stimulated by increasing quantities of census and vital statistics data and by the improvement of techniques. Interest was also aroused by the demographic costs of the war and the universality and rapidity of the decline in birth rates. Raymond Pearl and Lowell J. Reed rediscovered the logistic curve as the "expression of the law of population growth."<sup>1</sup> They developed and generalized the theory of the logistic, and used it to obtain population projections. Logistic curves have been fitted to the populations of many countries. The facts that they can be computed for any area for which several counts are available and that their rationale is appropriate to many demographic situations make them and similar curves useful as empirical descriptions of population growth, even though their validity as laws of growth is not accepted.<sup>2</sup>

The predictive value of any curve fitted to total populations at different periods of time is limited by the fact that it does not take into account the divergent patterns of fertility, mortality, and migration that may produce a given total change. An even more fundamental limitation to over-all predictions, however, is that they do not permit descriptions of the changes in age and sex composition of the populations. Since the importance of population change for economic or governmental planning depends on changes in specific age groups as much as on changes in total size, the logistic or other types of growth curves were seldom used for European countries in the latter part of the interwar period.

### *Component Projections*

Component projections are based on the assumption of continuity with the past, or of predictable discontinuity.<sup>3</sup> The population of a specified age and sex composition as of a given date is taken as a base line, and that square mile) by the year 2900. He concluded that for the next hundred years his projections should represent the actual population with a small margin of error; actually, his 1940 estimate was 162,268,000, and his estimate for the end of a century, 1990, was 839,198,000.

<sup>1</sup> The voluminous work of Pearl and Reed in this field is summarized and systematized, with citations to previous publications, in: Pearl, Titles 26 and 27, especially Chapter 24 of the latter, "The curve of population growth." For another work on the logistic, see: Yule, Title 41. For both empirical and theoretical critiques of the logistic, see: Knibbs, Titles 10 and 11, and Wilson, Title 40.

<sup>2</sup> The modifications in growth curves necessitated by the imminence of negative rates of growth and declining populations have been the subject of several recent studies. See, for instance: Volterra, Title 88. Rhodes made an interesting approach to the problem through introducing a retarding factor in the logistic equation, and then solving the difficulty of a retarding factor that was completely arbitrary by utilizing the changing rates of growth revealed in Charles' three estimates of the population of England. Rhodes, Title 142.

<sup>3</sup> The most complete analysis and bibliography of component projections yet to appear are those of David Glass, published in his *Population Policies and Movements in Europe* (Title 5). Mr. Glass made available his unpublished projections for a number of countries, as well as his analysis of projections for European and other countries. These appeared while this book was in press. See Title 46.

population is projected into the future by adding in births and subtracting deaths. Migration is usually ignored, either because there is no basis for rational assumptions as to its probable future course, or because the purpose of the estimate is to illustrate the consequences of a continuation of existing trends in births and deaths. The fundamental problem, therefore, is that of the future course of deaths and births.

The simplest form of component estimate assumed the continuation of the mortality of the most recent life table, or of the last intercensal survival ratios, and an annual number of births equal to that of the year of origin of the estimates. Actually, there is neither theoretical justification nor empirical basis for assuming a constant number of births. The technique is still used occasionally for a single projection of a country, but its main use has been as one of a series of alternative estimates, in which it usually gives the maximum future population.<sup>1</sup>

The most common type of component projection merely holds constant specific patterns of both fertility and mortality as of a certain date, and thus estimates in precise detail what the future population would be at various dates if the situation remained as it was at the time the estimates were made. Such estimates, based on fertility data of approximately the year cited, have been made for England and Wales by Charles, 1933, and by Glass, 1935; by the Registrars-General for Great Britain with "present data" (published in 1940); by Glass for Belgium, 1934-1935; by Sauvy for France, 1927, 1931, and 1935; by the Statistisches Reichsamt for Germany, 1924-1925 and 1927; by Gini and Finetti for Italy, 1921, and by Glass, 1935-1937; by Jensen for Denmark, 1921-1925; by the Statistical Office for Norway, 1930; by Wicksell and Quensel for Sweden, 1933; and by Ptouka for the Ukraine, 1929.<sup>2</sup> Many of these estimates form part of a series, in most cases representing the assumed maximum population for the future.

Actually, the chances of a continuation into the indefinite future of the precise age-specific patterns of mortality and fertility as of a certain date are negligible. If population projections are to be estimates of future populations, as distinguished from illustrations of what the population would be if the present situation continued, then there is no way of avoiding the difficult problem of estimating future trends in deaths and births. On the whole, and probably justifiably, the makers of estimates have been less concerned with changes in mortality than with declines in fertility.<sup>3</sup>

<sup>1</sup> See Jensen for Denmark (Title 57), Glass for Belgium and Italy (see Title 46), and the Statistisches Reichsamt for Germany (especially Titles 74 and 75). Several early projections were based on ingenious estimates of trends in the number of marriages and the average number of children per marriage. See Kahn's estimates for Germany (Titles 85 and 86), and those of Baudhuin and Creeft for Belgium (Titles 51 and 52).

<sup>2</sup> For bibliographical references for estimates cited in this and the following paragraphs, see Appendix III under country and author. Many of these estimates are presented graphically in Figures 54 and 55.

<sup>3</sup> Paulinus, Title 25.



Many merely used the most recent life table of the country, or of another country thought to be similar, regardless of the base year or years used for projection of fertility trends. Some assumed stationary mortality but computed life tables for the specific period. Others assumed certain declines in mortality that appeared to them reasonable and probable.<sup>1</sup> Attempts to project the rate of decline of the recent past have also been made. Gini and Finetti made one estimate for Italy in which they extrapolated the trends of various age groups with the mortality of New Zealand as the ultimate goal. Honey estimated the mortality of Great Britain by fitting curves to the data of English Life Tables Nos. 6-10. The most careful theoretical analysis was made by Glass in his third estimate for England and Wales. He used the generation method in extrapolation, taking cognizance of recent studies which have shown that each cohort of births tends to carry its own characteristic pattern of mortality through life.

Assumptions with reference to future trends of fertility present problems even more serious than those of mortality, if for no other reason than that the size and age structure of the population several decades hence depend primarily on these assumptions. In general, estimates based on changing fertility have either assumed certain ratios of decline in the age-specific fertility of women in the childbearing ages on the basis of past trends, or have actually extrapolated past rates of change by various methods. Charles' second estimates for England and Wales and for Scotland may be cited as illustrations of the first; she assumed differential declines in the fertility of the various age groups of women in the childbearing period on the basis of declines revealed in Sweden. The second method, that of extrapolating past rates of change into the future, is the most common, and numerous more or less adequate techniques have been used. These include projecting the rate of decline of a specific five-year period into the indefinite future (Sauvy), fitting straight lines to the rates of a recent period (Leybourne), assuming a geometric progression in the rate of decline (Honey), fitting a third degree parabola to the decline (Germany, 1926), or assuming a diagonal fall by age groups (Glass, England and Wales). In practically all of these estimates, fertility was assumed to fall in the specific manner until a definite date, after which it remained stationary. Few estimates assumed a rise in fertility. Charles made one estimate for England and Wales that assumed a rise from the age-specific fertility of 1933 to that of 1931, but neither presented it nor discussed it in any detail, presumably because it was regarded as improbable.

Trends in the proportion of women in the reproductive ages who are

<sup>1</sup> For example, estimates of Charles and Wilson for England and Wales, and of Charles for Scotland. Several of the estimates for Germany assumed declines only in infant mortality. The most careful and extensive work of this type is that of Thompson and Whelpton of the Scripps Foundation for Research in Population Problems, done in connection with their various estimates of the future population of the United States.

married are also of significance in making projections. Here, again, solutions of varying degrees of adequacy have been used in different estimates. In most countries the trends in fertility and in the proportion married in specific age groups have little relation to each other over any period of time. Recent German estimates have been made on various assumptions as to increases in the proportion married, an interest related to the official attempts to increase marriages. In Sweden the late average age at marriage and the high proportions unmarried make the trend of the marriage rate of significance for population estimates. Wicksell and Quensel made four alternative estimates for the Population Commission of Sweden to illustrate quantitatively what would happen if population policies could be initiated that would result in decreasing the age of marriage and increasing the proportion married. This is another instance of estimates serving primarily as illustrations of what would happen to the population if changes of a specific nature occurred.

If population estimates are to partake of the nature of predictions, they cannot ignore the possible population shifts in the future due to migration. The problem of making reasonable estimates of future emigration and immigration was so nearly insoluble, even in the prewar decades, that most component estimates ignored it completely. In the period from the mid-'twenties to the opening of World War II, this was not such a serious deficiency, since the actual amount of permanent international migration was small, whether considered in absolute amounts or in relation to the population of the sending or the receiving country. Where estimates of migration were made, they were more or less arbitrary, usually assuming the migration of a specified number of persons per year for illustrative purposes only.

Students grappling with the problems of population estimates in recent years have seldom attempted to "predict" future population, even though their estimates have often been publicized as predictions. They have approached the problem, rather, as one indicating what would happen to the population of the future if certain definite assumptions as to fertility, mortality, and perhaps migration were made. They have often avoided the difficulty of choosing the one most probable assumption by presenting a series of estimates based on differing assumptions. The simplest type presented only two estimates. While one of the two usually assumed the continuation of the fertility rates as of the date of estimation, the character of the other estimate depended on the specific purpose for which the projections were made. Geary's estimates for Ireland and those of Glass for Belgium and Italy took, as one assumption, a fixed annual number of births. Sauvy's 1937 series of estimates for France, and Charles' projections for Scotland assumed, first, a continuation of the specific fertility rates as of the date of estimation, and second, declines in those rates.

Many students made three or more estimates, thus giving probable lower, middle, and upper limits to the population trends of the future. Charles made estimates for England and Wales on the following assumptions: low,

extrapolation of recent trends in fertility and mortality; medium, continuation of the fertility and mortality of 1933; high, fertility of 1931, declining mortality. Glass made a series of estimates for England and Wales on different assumptions: low, extrapolation of trends in fertility and mortality, but using techniques and a base different from those used by Charles; medium, a continuation of the fertility and mortality of 1933; and high, fertility and mortality as in the previous estimate, but with a net immigration of 500,000 persons every five years. Thompson and Whelpton present twelve different sets of estimates for the United States, using various combinations of high, medium, and low fertility and mortality with and without migration.

In other cases, series of estimates have been made to illuminate a particular aspect of the population problem. Wicksell's estimates for Sweden included one based on an extrapolation of the decline of fertility after 1933, and three based on the fertility rates of 1933 but with different assumptions as to the nuptiality rate. The most recent German estimates reflect the interest in quantitative population policy, one being based on the assumption of an increased number of marriages, the other based on an estimate of the number of births necessary to maintain the cohort of military recruits at its size in a specified year.<sup>1</sup>

The geographical distribution of estimates and the uses to which they have been put are highly significant. They have tended to flourish particularly in those countries of Western and Northern Europe in which the extent and rapidity of the decline of the birth rate had made clear the imminence of population decline as an acute social, economic, and probably political problem. Various estimates of the population of Great Britain or its parts have been made, ranging from the original attempt at a component projection by Cannan in 1895 to the estimates made by the Registrars-General for the Royal Commission on the Geographical Distribution of the Industrial Population, published in 1940 after the outbreak of war. Sauvy made successive series of estimates for France, and there have been numerous estimates for Germany in addition to the three series published by the Statistisches Reichsamt. Less attention has been devoted to the problem in the Netherlands and Belgium, though estimates have been made. The most numerous and also the most adequate of the Scandinavian estimates have been made in Sweden, where the population question has become a matter of widespread national concern. Many estimates have been made for Italy, where an ideology of population growth focused attention on the possibility of decline long before birth rates had fallen to a point that would make decline a problem of the immediate future. A massive literature developed on the subject of declining fertility, the possibilities

<sup>1</sup> For other series of alternative estimates, see: Denmark—Jensen, Titles 57 and 58; Germany—Statistisches Reichsamt, Titles 74 and 75; Italy—Gini and Finetti, Title 96; Latvia—Bulmerincq, Title 97; and United Kingdom—estimates of the Registrars-General for Great Britain, Title 147. For a comparative analysis of the various series of estimates for Germany, see Deneffe, Title 71.

of decline, and the need for increasing fertility, even while the net reproduction rate remained above unity.

There are few component projections for Central or Eastern Europe, and these are generally quite unsatisfactory. The Statistisches Reichsam made estimates for several of these nations on the assumption of a constant annual number of births. Other estimates have been made of the future population of the Ukraine. Estimates have been published for Austria, Czechoslovakia, and Finland, all countries of low fertility. But, in general, the attention of demographers in Eastern Europe has been focused on the problems of overpopulation and the unsatisfactory relation of people to resources. Even if interest in projecting populations into the future had existed, trained statisticians have been few and the raw data in census and vital statistics have been inadequate. As a rule, what curiosity existed has been satisfied by the fitting of logistics.<sup>1</sup>

The great majority of component population predictions, in other words, have been part of the general literature of the demography of decline. They have served to indicate in quantitative terms what the population would be if either the age-specific rates or the past trends of decline continued, without necessarily assuming that such trends would continue, although they have often pointed out the improbability of increases in fertility under the existing situations. Estimates for the various countries have differed as to the size of the maximum population, the date at which the decline would begin, and the rate and extent of such decline, but even the most optimistic predictions have not envisaged a condition of stabilization at the maximum population to be reached now or in the future. The "optimistic" estimates have usually been those assuming continuation of the age-specific fertility and mortality as of the date of estimation; the "pessimistic" estimates have assumed continuation of the decline that has characterized the past until some definite period in the future. Few estimates have envisaged the continued decline of fertility to zero; instead, they have estimated that ultimately there would be a cessation of decline, though often at a very low level.

Most estimators have been careful to distinguish between the consequences of past population trends that could not be avoided, and those that depended essentially on continuation of the trends of the past into the future. The total size and age composition of the present population is obviously a fact fixed by past population dynamics; barring extensive migration, the entire labor force for the next fifteen or twenty years is already born and can be changed in size from the projected population only by changes in the mortality rates assumed in the projections. Even if the birth rate for any given nation were to increase to a point capable of maintaining the population at its present size, there would still be a long period before the age composition of the existing population would cease to reflect the disturbances due to the decline of the birth rate in the past.

<sup>1</sup> Valaoras, Title 92; and Ramneantzu, Title 105.

The validity of population projections has been assumed to vary inversely with the period for which a projection is made. The shorter the period of time, the greater is the degree of certainty in the projection of an existing population of a specific age composition; the longer the period of time, the greater is the influence of specific assumptions as to the course of the birth rate, and the greater the degree of uncertainty. War has been implicitly ruled out of consideration in previous discussions of this problem, for war may reverse the situation and make immediate short-run projections even more hazardous than long-run projections.

The universality of the predictions of decline means, of course, that the estimates have generally envisaged a situation of changing age distributions, with decreasing numbers of children and youth, increasing numbers of the aged, and a fairly stationary but eventually changing population in employable ages, which would also be aging. All estimators have pointed out the significance of these changes in age composition for various economic, welfare, health, educational, and military problems. The extent and rapidity of the shifts in the total size of the various age groups, and their relative share in the total population, depend, of course, on the specific assumptions made as to future changes in birth and death rates.

In most countries the significance of the various estimates has been discussed primarily with reference to internal social and economic problems. In general, there has been little reference to the effect that may be produced upon international economic and political relations by the diverse rates at which various populations may increase or decrease in the future. In Great Britain and Sweden the relation of declining population to economic problems has received frequent emphasis.<sup>1</sup> Military and racial aspects have been prominent in much of the discussion of future trends, especially in Germany. The Statistisches Reichsamt computed estimates for Germany and nine other European countries, stressing the differential rate of growth of Eastern Europe versus Western Europe.<sup>2</sup> These estimates formed the basis for considerable literature on comparative trends in military manpower, comparative size of recruit classes, and the "dangers" of the "slavonization" of Europe. Many students in the nations of Western Europe have indicated the "dangers" of an invasion of the declining West by the prolific peoples of the East. In none of these discussions, however,

<sup>1</sup> See for example: Reddaway, Title 80; and Myrdal, Title 22.

<sup>2</sup> Germany, Statistisches Reichsamt, Title 75. As part of the discussion, a summary table shows the number and proportionate share of various state groups in the total European population as of 1925 and 1960. This table was used and elaborated upon by Burgdörfer and has been widely quoted. (Burgdörfer, Title 70, pp. 372 ff.) It suggests the shifting of the center of population gravity from West and Central to Eastern Europe and the increasing importance of Slavic people in the total number of Europeans. Little importance can be attached to these figures, however, for in the case of Hungary and Czechoslovakia, the 1960 population was apparently derived by simply increasing the 1925 population a straight 20 per cent, and the population of the Balkans by applying a 80 per cent increase, comparable to the increase in Italy during the same period.

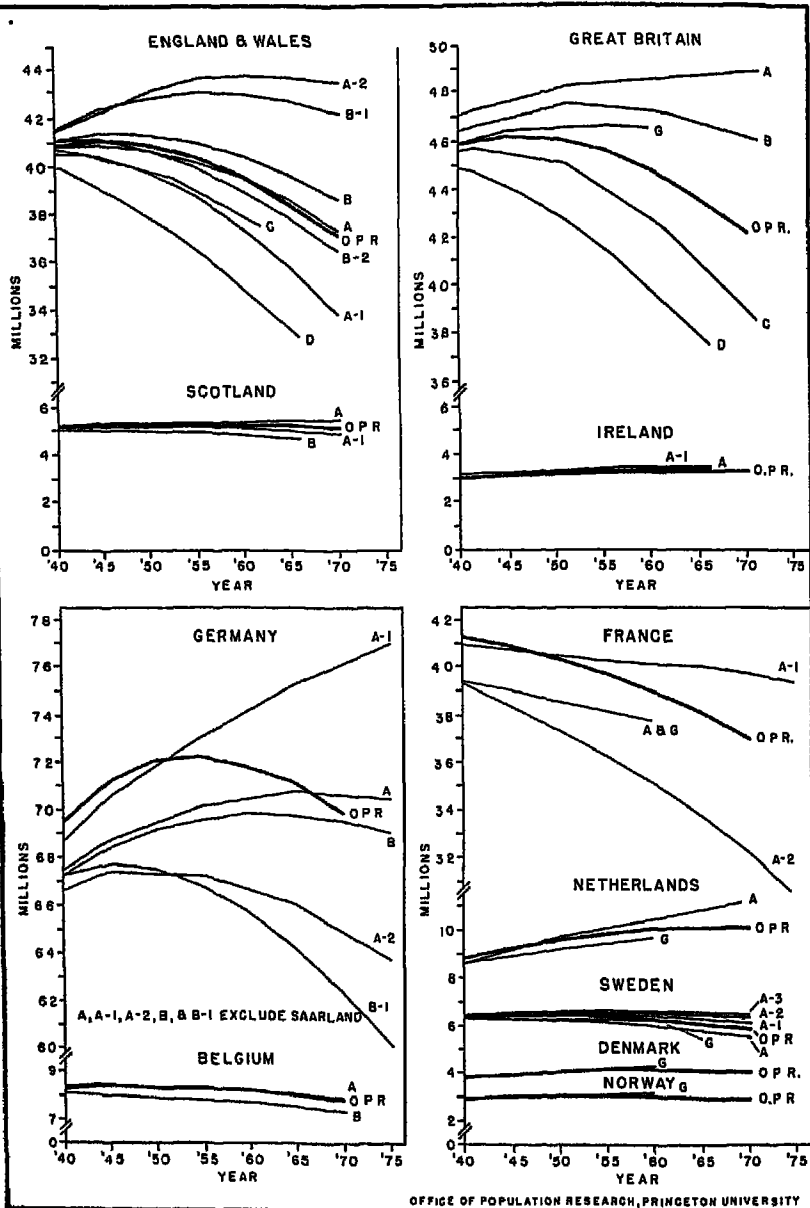
has there been a careful attempt to study the population trends of Eastern Europe; it has been assumed that these areas would remain indefinitely regions of high fertility, while Western Europe would continue to decline.

Over and beyond any worth that these previous projections may have had as predictions, they were valuable calculations illustrating the trends inherent in the vital situation as of specific periods in given countries. They are quite inadequate as the basis for economic planning for Europe as a whole, since even for the countries for which they are available they differ as to date of origin, nature of hypotheses, and technical procedures. The comparability essential to inter-regional comparisons is lacking even for the nations for which estimates are available. An even greater difficulty is that there are no estimates of any type that permit analysis of the most fundamental problem in the dynamics of European population development, the differential rates of increase or decrease of eastern versus western, of agrarian versus industrial areas. In this monograph, therefore, it has been necessary to attempt new projections of the population of each country on consistent hypotheses as to the future trends of births and deaths. These estimates have described in quantitative terms the future populations of various regions inherent in the continuation of prewar trends in births and deaths. While they cannot be considered predictions, they indicate what the population would be if the complex of factors affecting births and deaths remained unchanged. Thus they provide a rational basis for the analysis of the types of population trends and problems that will exist in the different nations and regions of Europe in the future.

#### *Comparison of Various Projections with Those of This Report*

The population projections of this monograph have been based on a generalized conception of the demographic trends of Europe. By contrast, other projections have been based either on rather arbitrary assumptions of fixed mortality and fixed numbers of births, or have been attempts to extend appropriately the past experience of a single country. The comparison of such projections with those of the present series serves to illustrate at once the need for an internationally comparable series, and the extent to which the results of a generalized procedure agree in principle with those arrived at by students of single areas. Figures 54 and 55 permit such comparisons for a number of countries. Table 10 summarizes the sources, years covered, and basic assumptions. No attempt has been made to include all the estimates ever made, but a sufficient number of those developed in the 'twenties and early 'thirties is given to indicate the relative position of the present series in the group.

The largest uniform series of projections other than that of this report was published by the Statistisches Reichsamt of Germany in 1930 and relates to the years 1925 to 1960. In general the results are fairly close to those of this report, as regards total numbers. As may be seen from Figures 54 and 55 they are higher for Great Britain (G), Italy (G), and



**Figure 54. Comparison of population projections for various countries of Europe.**

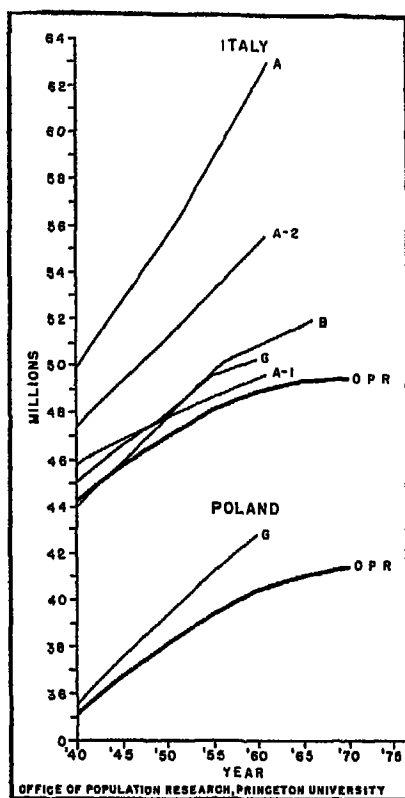


Figure 55. Comparison of population projections for Italy and Poland.

Poland (*G*); lower for the Netherlands (*G*) and France (*A* and *G*); and much the same for Denmark (*G*), Norway (*G*), and Sweden (*G*). In most cases the German series have upward trends between 1940 and 1960, while those of this report fall off. The trends result from assumptions of constant mortality based on life tables of the period 1910-1925 and a constant supply of live births equal to that of 1927 or 1928. The latter condition amounts to assuming a gradual decline in fertility when parental stocks are increasing and a rise when they are decreasing. Hence, the populations begin to differ rather widely by 1950 and 1960 from those of this report, in which fertility declines at a progressively slower rate.

Among the projections available for single countries that are shown in the accompanying chart, there are several that differ notably from those of the present study. For England and Wales, Glass' estimate II (*B-1*) runs much larger than that of the present series. It assumes a continuation of



the mortality and fertility rates of 1935 and a net immigration of half a million every five years from 1940 on. Estimates II (*A-1*) and III (*A-2*) by Charles are lower and higher, respectively, than the present projections. In Estimate II (*A-1*) Charles assumed: first, that mortality will fall by 20 per cent every five years for infants, and by 10 per cent every five years for persons aged 1 to 70, the decline ceasing in 1965; and, second, that fertility rates will remain constant for females under 20, but will decrease every five years by 5 per cent for females aged 20-24, 15 per cent for females 25-39, and 25 per cent for those 40-49, the fall continuing to 1985. Her high Estimate III (*A-2*) assumes the same decline in mortality as Estimate II (*A-1*) but concentrated in 15 instead of in 30 years, and that fertility will rise to the 1931 level and remain there.

Among the populations projected for Great Britain those by Bowley (*A*) and by the Registrars-General of England and Wales and of Scotland (*B*) are higher than the present series; those by Honey (*C*) and by Leybourne (*D*) are lower. Bowley assumed a constant annual number of births equal to those of 1921-1923 (hence in the later years, implicitly, rising fertility) and death rates as in 1910-1912. The Registrars-General (*B*) assumed a net immigration until 1951, the continuance of fertility at its "present level" and a continued decline of mortality. Honey's lower projections (*C*) are derived by fitting curves to the trend of mortality on the basis of English Life Tables Nos. 6-10, and by assuming that fertility will fall every five years in the same proportion that it did between 1926 and 1931. Leybourne's (*D*) even lower results are based on the assumption that mortality will remain constant, apparently at the 1924-1932 level, and that the fertility rate will continue the annual amount of decline of the years 1924-1931 until 1944 and then remain constant.

The German projections of their own population are not comparable with the present series in that they do not include the population of the Saarland. Moreover, they were made prior to the positive population policies of the 'thirties. On the other hand, as was pointed out in Chapter I, the projections of this report implicitly assume an orderly decline of fertility from the high levels of the immediate prewar years. It seems likely that a sharper drop will occur, hence that, even apart from war losses, the values of the present series are too high. One German series (*A-1*) is conspicuously higher. It assumes constant mortality at the level of 1921-1923, a constant number of illegitimate births, apparently at the 1923 level, and constant legitimate fertility at the 1924-1925 level. Projection *A* holds mortality constant at the 1921-1923 level, and assumes that the annual number of live births will be that of 1923. Projection *A-2* carries the same assumption for mortality but posits a 25 per cent decline in legitimate fertility from the 1924-1925 level until 1954-1955, after which there is no change, and holds the number of illegitimate births at the 1923 level. Projections *B* and *B-1* each hold mortality constant at the level of 1924-1926. *B* assumes that births will continue at the level of 1927, and

*B-1* that there will be a 25 per cent decline in legitimate and illegitimate fertility between 1925 and 1955, after which there will be no change.

The estimates for France were constructed by Sauvy, except that the one denoted *A* and *G* was extended five years by the Germans. The initial differences from those of this report are in part due to the fact that they are based on the census of 1921 or 1926 and take no account of immigration up to 1931, from which the estimates of this report start. Estimate *A* and *G* is based on constant mortality as of 1920-1923 and constant fertility slightly below that of 1920-1924. Estimate *A-1* is based on constant fertility at a level that gave the actual births of 1929-1930 and a rather rapid decline of mortality. Estimate *A-2* assumes the same rapid decline of mortality, but constant fertility at the low level observed in the Department of the Seine in 1925-1927.

Lewandowski and Linn's estimates for the Netherlands (*A*) depart rather sharply from those of this report both in number and in the nature of the trend. They were derived by fitting a logistic curve to the past trends of the total population.

Gini's projections *A* and *A-2* for Italy rise sharply above those of this report. *A* assumes unchanging fertility and mortality apparently at the level of the late 'twenties, and *A-2* assumes a continuation of the 1922-1928 decline in fertility until 1948, and a decline in mortality rates to the level of New Zealand in 1927. *A-1* carries the same assumption as to fertility, but holds mortality constant at the level of 1920-1921.

In appraising the dispersions of the various projections, the reader should bear in mind the different purposes of the workers. Students such as Glass and Charles were attempting to place limits within which the actual populations would almost certainly fall. Hence the high and low estimates allow for a very considerable range. The purpose of the present series, on the other hand, is to illustrate the process of population change under specific uniform assumptions that have a basis in experience, but that disregard the possibility of wholly new factors entering into the situation. In general the projections of this report fall rather close to the central estimates of other workers. They depart substantially in the cases of Poland and Italy because, in consonance with the experience of the 'twenties and 'thirties, they provide for rapid declines of fertility where the rates are still high, and the earlier estimates do not. In countries with slower growth the projections of this report tend to give somewhat larger populations than those obtained by other workers on the assumption of continued declines of fertility and mortality. In general, the comparisons suggest that the methods used in constructing the present series, though rigidly uniform, were sufficiently flexible to be appropriate to the diversity of situations to which they are applied.

TABLE 10

Summary of Sources, Years Covered, and Basic Assumptions of Projections Presented in Figures 54 and 55

Symbols Used in Figures 54 and 55	Source	Years Covered	Basic Assumptions Concerning		Migra- tion
			Mortality	Fertility	
O.P.R.	Office of Population Research	1940- 1970	Slowing decline. (See Chap- ter I and Appendix I.)	Slowing decline. (See Chapter I and Appendix I.)	None
G.	Germany, Statisti- sches Reichsamt. 1980. Title 75.	1925- 1960	Held constant. Derived for each country from a life table between 1910 and 1925 for that particular country.	Constant annual number of live births, for each country equal to number of births in that country as of 1927 or 1928.	None
England and Wales A (Estimate I)	Charles, Enid. 1935. Titles 127 and 128.	1935- 2035	Continuation of mortality rates of 1933.	Continuation of fertility rates of 1933. Total births of England and Wales in 1933 distributed among women of different ages as in Swe- den in 1931.	None
A-1 (Estimate II)	<i>Ibid.</i> Titles 127 and 128.	1935- 2035	Mortality rates fall: for per- sons under 1 by 20 per cent every 5 years; 1-70 by 10 per cent every 5 years ceas- ing in 1965; for 70 plus, no change.	Declining fertility except that rates for females under 20 remain con- stant. Rates for others fall every 5 years as follows: for females 20-24, by 5 per cent; for those 25-39, by 15 per cent; for those 40-49 by 25 per cent. Fall continues until 1985; rates constant thereafter.	None
A-2 (Estimate III)	<i>Ibid.</i> Title 127.	1935- 2035	Same extent of decline as in A-1 but occurring within 15 years.	Constant fertility of 1931, about 10 per cent higher than in 1933.	None

B (Estimate I)	Glass, D. V. 1940. Title 5.	1935- 2000	Continuation of mortality rates of 1935.	Continuation of fertility rates of 1935. Age specific fertility rates were estimated from rates for Swe- den in 1931.	None
	<i>Ibid.</i>	1935- 2000	Same as B.	Same as B.	Net immi- gration of 500,000 every 5 years from 1940.
	<i>Ibid.</i>	1935- 2000	Declining mortality until 1970. Extrapolates recent trends, taking into account the generation method. (From life tables for England and Wales 1951-1985, probabilities of dying between successive birthdays were plotted in log. form and curves fitted to the generations.)	Declining fertility until 1960. Ex- trapolates recent trends, taking into account trend of gross reproduction rate and diagonal fall by age shown in many countries. The fall was as- sumed to be greater with each suc- cessive age group.	None
C	Wilson, Norman. 1955. Title 150.	1932- 1962	Improvement in mortality rate, progressively diminish- ing, of (1) infants under 1 until 1931; (2) infants 1-2 until 1946; (3) infants 2-5 until 1941; and in tuberculo- sis death rate of persons 15-30 from 1952 on.	Marriage rate unchanged. Annual number of births continues at 1933 level to 1937; declines 1938-1942, by 3 per cent per year; 1943-1952 by 1 per cent per year; 1953-1957 by 2 per cent per year; and from 1958- 1962 by 1 per cent per year.	None
	Leybourne, G. G. 1934. Title 140.	1931- 1976	Mortality held constant at 1924-1932 level, with adjust- ments for ages 60 and over.	Fertility rates were extrapolated by fitting straight lines to data of 1924- 1931, assuming they would stabilize at 1944 level. Number of married females 15-44 estimated by fitting	None

TABLE 10 (continued)

Summary of Sources, Years Covered, and Basic Assumptions of Projections Presented in Figures 54 and 55

Symbols Used in Figures 54 and 55	Source	Years Covered	Basic Assumptions Concerning		Migra- tion
			Mortality	Fertility	
Scotland <i>A</i>	Charles, Enid. 1938. Title 128.	1935- 2035	Age-specific death rates held constant at 1933 level.	a straight line to proportions which married women formed of all wom- en in same age group in 1924-1931 but assuming stability at 1944 level.	None
<i>A-I</i>	<i>Ibid.</i>	1935- 2035	Same as <i>A-I</i> under England and Wales.	Specific fertility rates held constant at 1934 level. (Births adjusted ac- cording to age-specific fertility of Sweden in 1926.)	None
<i>B</i>	Leybourne, G. G. 1984. Title 140.	1931- 1976	Same as <i>D</i> under England and Wales.	Same as <i>D</i> under England and Wales.	None
Great Britain <i>G</i>	See note <i>G</i> above.				
<i>A</i>	Bowley, A. L. 1924. Title 125.	1921- 2011	Death rates as in England and Wales, 1910-1912.	Annual number of births same as in Great Britain, 1921-1923. Age dis- tribution of 1921.	None
<i>B</i>	Registrars-General of England and Wales, and Scot- land. 1940. Title 147.	1941- 1971	Mortality "will continue to fall." (Precise methods of computation are not stated.)	Fertility continues at "present lev- el." (Precise methods of computa- tion are not stated.)	Net inward migration 1941-1951.

<i>O</i>	Honey, F. J. C. 1937. Title 187.	1941- 1971	Mortality estimated by fitting curves to English Life Tables 6-10. Infant mortality was weighted by respective number of births and graphically extrapolated.	Births at pivotal years estimated by extrapolation of fertility rates for 1921 and 1931. Trend falls by geometric progression every 5 years in ratio of 1931 rates to those for 1926.	None
<i>D</i>	Leybourne, G. G. 1934. Title 140.	1931- 1976	Same as <i>D</i> under England and Wales.	Same as <i>D</i> under England and Wales.	None
Ireland <i>A</i>	Geary, R. C. 1935- 1936. Title 98.	1926- 1986	Mortality held constant at 1925-1927 level.	Constant annual supply of births at 57,300.	None
<i>A-1</i>	<i>Ibid.</i>	1926- 1986	Same as <i>A</i> .	Constant fertility at 85.8 births per 1,000 women 15-44 years of age.	None
Germany <i>A</i>	Germany, Statistisches Reichsamt. 1926. Title 74.	1925- 1975	Held constant at 1921-1923 level.	Constant annual supply of live births, both legitimate and illegitimate, at 1923 level.	None
<i>A-1</i>	<i>Ibid.</i>	1925- 1975	Same as <i>A</i> .	Legitimate fertility constant at 1924-1925 level. Number of illegitimate births constant at 1923 level.	None
<i>A-2</i>	<i>Ibid.</i>	1925- 1975	Same as <i>A</i> .	Legitimate fertility falls (equal falls in each 5-year age group 20-44) by 25 per cent from 1924-1925 to 1954-1955; then remains constant. Fall describes a third degree parabola. Annual number of illegitimate births constant at 1923 level.	None
<i>B</i>	Germany, Statistisches Reichsamt. 1930. Title 76.	1928- 2000	Held constant at 1924-1926 level.	Constant annual supply of live births at level of 1927.	None

TABLE 10 (continued)

Summary of Sources, Years Covered, and Basic Assumptions of Projections Presented in Figures 54 and 55

Symbols Used in Figures 54 and 55	Source	Years Covered	Basic Assumptions Concerning		Migra- tion
			Mortality	Fertility	
<i>B-1</i>	<i>Ibid.</i>	1928- 2000	Same as <i>B</i> .	Legitimate and illegitimate fertility falls 25 per cent by 1955; thereafter fertility held constant.	None
Belgium <i>A</i>	Glass, D. V. 1943- 1944. Title 46.	1935- 2000	Continuation of mortality of 1934-1935.	Continuation of fertility rates of 1934-1935.	None
<i>B</i>	Bandhuin, F. 1931. Title 51.	1930- 1970	Constant rates; equal for both sexes at level shown by French life table for females, 1920-1923.	Births estimated by assuming 2.7 births are necessary to produce one marriage about 24 years later, and each marriage produces two chil- dren.	None
France <i>A and G</i>	Sauvy, A. 1928-1929. Extended by Sta- tistisches Reichsamt in <i>G</i> . Titles 63 and 75.	1927- 1956- 1960	Mortality of life table for France for 1920-1923.	"Current" fertility rates (slightly below those for 1920-1924).	None
<i>A-1</i>	Sauvy, A. 1932. Title 64.	1929- 1980	Mortality falls 50 per cent in 30 years for ages 0-1; 20 per cent for group 1-59; no change for those over 60. Mortality stationary after 30 years.	Held constant at rates current in recent years. (Apparently applied specific fertility rates of 1925-1927, but reduced them so that number of births computed for 1931 equalled average of actual births 1929-1930.)	None

<i>A-2</i>	<i>Ibid.</i>	1929-1980	Same as <i>A-1</i> .	Beginning with 1981, fertility held constant at rates for Seine département in 1925-1927.	None
Netherlands <i>G</i>	See note <i>G</i> above.				
<i>A</i>	Lewandowski, H. and Linn, W. C. A. 1988. Title 100.	1829-2099	Projections derived by using the Pearl-Reed logistic curve.	Projections derived by using the Pearl-Reed logistic curve.	None
Sweden <i>G</i>	See note <i>G</i> above.				
<i>A</i> (Estimate I)	Wicksell, S. D. and Quensel, C. E. 1988. Title 114.	1985-1970	Mortality as of 1988.	Extrapolation of decline in recent years, though at a decreasing rate.	None
<i>A-1</i> (Estimate II)	<i>Ibid.</i>	1985-1970	Same as <i>A</i> .	Marital and illegitimate fertility of 1983; nuptiality of 1901-1910.	None
<i>A-2</i> (Estimate III)	<i>Ibid.</i>	1985-1970	Same as <i>A</i> .	Same fertility as <i>A-1</i> , but nuptiality 25 per cent higher than in 1901-1910, as from 1986.	None
<i>A-3</i> (Estimate IV)	<i>Ibid.</i>	1985-1970	Same as <i>A</i> .	Marital fertility of 1983; regular decline in illegitimate fertility until, from 1956 on, it is 80 per cent below level of 1983. Nuptiality 50 per cent higher than in 1901-1910.	None
Denmark <i>G</i>	See note <i>G</i> above.				
Norway <i>G</i>	See note <i>G</i> above.				



TABLE 10 (*continued*)  
Summary of Sources, Years Covered, and Basic Assumptions of Projections Presented in Figures 54 and 55

Symbols Used in Figures 54 and 55	Source	Years Covered	Basic Assumptions Concerning		
			Mortality	Fertility	Migra- tion
Italy <i>G</i>	See note <i>G</i> above.				
<i>A</i>	Gini, C. In: Ger- many. Statistisches Reichsamt. 1930. Title 75.	1921- 1961	Unchanged mortality.	Unchanged fertility.	None
<i>A-1</i>	<i>Ibid.</i>	1921- 1961	Unchanged mortality as of 1920-1921.	Decrease of relative fertility as con- tinuance of decline 1922-1928, until 1948.	None
<i>A-2</i>	<i>Ibid.</i>	1921- 1961	Decline of mortality until it reaches mortality rate of New Zealand, 1927.	Same as <i>A-1</i> .	None
<i>B</i>	Glass, D. V. 1943- 1944. Title 46.	1936- 1961	Constant mortality of 1935- 1937.	Constant fertility as of 1935-1937.	None
Poland <i>G</i>	See note <i>G</i> above.				

### APPENDIX III

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*APPENDIX IV*

POPULATION PROJECTIONS FOR EUROPE  
AND THE U.S.S.R.  
AT FIVE-YEAR INTERVALS, 1940-1970

# APPENDIX IV

## THE POPULATION PROJECTIONS

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## INTRODUCTION

THE projections presented in the following tables must be considered primarily as illustrations of the populations that could reasonably be expected within the national boundaries of 1937 from an uninterrupted orderly development of interwar vital trends. No allowance has been made either for the demographic effects of the war or for migration subsequent to the base census over the national boundaries of 1937. Therefore, the projections have only a very general predictive validity.

The tables for each country and combination of countries give quinquennial and consolidated age distributions for the total, male, and female populations at five-year intervals from 1940 to 1970; and the corresponding per cent distributions for 1940, 1955, and 1970. In the case of the absolute values, all entries lying above the stepped diagonal lines relate to persons born after 1940 and those below to persons born before 1940. Values below the line are those for cohorts whose number at birth is, in general, rather well known. They will differ from the actual populations because of migration over the national boundaries of 1937 and because the actual mortality will differ from that projected. Values above the line will differ for the additional reason that the size of the actual cohorts at birth will differ from that of the ones projected.

Certain somewhat unusual procedures have been followed in constructing the tables. All numbers are given in thousands rounded to three significant figures. Zeros following the third significant figure are written "o" instead of "0" to indicate that their only function is the location of the decimal point. As the result of this systematic rounding, totals and sub-totals within the same table, the totals of both sexes, and the consolidations of national data into regions are not necessarily the exact sums of the appropriate detailed entries. The procedure was as follows: (1) All projections were made separately for the quinquennial age groups of each sex in each country, the results being carried to three significant figures. (For exception, see note to Albania.) (2) All consolidations were obtained from the unrounded sums of these entries. (3) These sums were then rounded to three figures. Per cent age distributions were based on the results before final rounding. The totals are given as 100 per cent, although the values of the constituent age groups are not forced to that total.

The notes following the tables give details of the areas dealt with and the dates of the base censuses and fertility schedules and those at which the projection of fertility starts. The methods used and the validity of the basic data are discussed in Chapter I and Appendix I.

## APPENDIX IV—EUROPE AND THE U.S.S.R.

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	572,000	597,000	610,000	636,000	650,000	661,000	668,000
0 - 4	58,800	57,900	51,900	51,700	48,200	47,500	45,200
5 - 9	52,600	56,500	54,800	52,300	50,300	48,200	46,500
10 - 14	57,300	52,000	55,800	54,200	51,700	49,800	47,900
15 - 19	51,500	56,600	51,400	55,300	53,700	51,200	49,400
20 - 24	43,100	50,600	55,700	50,500	54,500	52,800	50,700
25 - 29	50,200	42,200	49,600	54,500	49,700	53,600	52,200
30 - 34	46,700	49,700	41,300	48,600	53,600	48,900	52,800
35 - 39	42,000	45,700	47,900	40,400	47,700	52,600	48,000
40 - 44	74,700	40,800	44,500	46,700	39,500	46,700	51,600
45 - 49	24,400	13,400	39,400	43,000	45,300	38,300	45,500
50 - 54	26,300	28,000	31,800	37,600	41,200	43,400	36,800
55 - 59	23,100	24,400	26,100	29,700	35,200	38,600	40,800
60 - 64	19,600	20,700	22,000	23,600	27,000	32,000	35,200
65 - 69	15,300	16,600	17,600	18,900	20,300	23,300	27,700
70 - 74	10,800	11,800	12,900	13,800	14,900	16,100	18,600
75 - 79	6,660	7,190	7,940	8,760	9,430	10,200	11,200
80 - 84	2,920	3,420	3,750	4,200	4,700	5,110	5,500
85 +	1,140	1,300	1,540	1,750	2,010	2,300	2,570
0 - 14	169,000	165,000	165,000	158,000	151,000	145,000	139,000
20 - 34	140,000	142,000	147,000	154,000	158,000	155,000	156,000
35 - 44	76,700	86,500	92,300	87,100	87,200	99,300	99,600
45 - 64	98,400	107,000	119,000	134,000	149,000	152,000	158,000
15 - 64	367,000	391,000	410,000	430,000	447,000	458,000	463,000
65 +	36,900	40,400	43,800	47,400	51,300	57,100	65,700

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	278,000	291,000	302,000	312,000	320,000	327,000	331,000
0 - 4	29,800	28,800	27,300	26,200	25,100	24,200	23,000
5 - 9	26,600	28,700	27,700	26,500	25,500	24,500	23,700
10 - 14	28,900	26,200	24,300	27,400	26,300	25,200	24,300
15 - 19	25,000	28,500	25,000	28,000	27,200	25,000	25,000
20 - 24	21,700	25,500	24,000	25,500	27,600	28,800	26,700
25 - 29	24,800	21,200	25,000	27,500	25,100	27,200	28,400
30 - 34	23,100	24,200	20,800	24,500	27,000	24,700	26,800
35 - 39	20,200	22,500	21,700	20,300	24,000	26,500	24,200
40 - 44	16,100	19,600	21,800	23,000	19,400	23,500	26,000
45 - 49	13,300	15,400	18,800	21,000	22,300	19,200	22,800
50 - 54	12,000	12,600	14,600	17,800	20,000	21,200	18,300
55 - 59	16,600	11,100	11,600	13,500	16,600	18,600	19,800
60 - 64	7,010	9,380	9,820	10,300	12,100	14,900	16,800
65 - 69	6,990	7,490	7,830	8,250	8,740	10,200	12,700
70 - 74	4,830	5,250	5,680	5,980	6,330	6,770	7,990
75 - 79	2,860	7,090	3,410	3,730	3,960	4,230	4,560
80 - 84	1,200	1,390	1,540	1,730	1,920	2,070	2,240
85 +	421	482	570	652	752	856	950
0 - 14	85,300	83,700	83,400	80,100	76,800	73,900	71,000
20 - 34	69,500	70,900	73,800	77,500	79,700	78,700	78,800
35 - 44	36,300	42,100	45,500	43,300	43,800	50,000	50,200
45 - 64	45,000	48,400	54,800	62,700	70,900	73,900	77,700
15 - 64	177,000	190,000	200,000	212,000	222,000	228,000	232,000
65 +	16,300	17,700	19,000	20,300	21,700	24,200	28,400

## APPENDIX IV—EUROPE AND THE U.S.S.R.

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	10.27	8.13	6.74	10.71	8.41	6.94	9.86	7.86	6.56
5 - 9	9.19	9.22	6.96	9.55	8.48	7.15	8.85	7.98	6.77
10 - 14	10.02	8.53	7.17	10.39	9.79	7.35	9.66	8.27	6.99
15 - 19	9.00	8.70	7.39	9.32	8.98	7.56	8.70	8.43	7.23
20 - 24	7.53	7.75	7.59	7.78	9.18	7.75	7.28	7.73	7.43
25 - 29	8.76	8.58	7.80	8.91	8.81	7.97	8.63	8.36	7.64
30 - 34	8.19	7.65	7.90	8.28	7.84	8.09	8.10	7.47	7.72
35 - 39	7.34	6.35	7.19	7.26	6.51	7.30	7.42	6.20	7.06
40 - 44	6.05	7.35	7.73	5.78	7.38	7.85	6.32	7.31	7.61
45 - 49	5.14	6.77	6.81	4.79	6.74	6.88	5.47	6.80	6.74
50 - 54	4.59	5.92	5.51	4.32	5.72	5.54	4.85	6.11	5.49
55 - 59	4.03	4.68	6.11	3.82	4.32	5.98	4.24	5.02	6.23
60 - 64	3.43	3.71	5.27	3.24	3.32	5.07	3.61	4.10	5.47
65 - 69	2.68	2.97	4.15	2.51	2.64	3.83	2.84	3.28	4.47
70 - 74	1.89	2.17	2.78	1.73	1.92	2.41	2.04	2.42	3.15
75 - 79	1.16	1.38	1.67	1.03	1.19	1.38	1.29	1.55	1.96
80 - 84	.51	.66	.94	.43	.55	.68	.59	.76	1.00
85 +	.20	.28	.38	.15	.21	.29	.25	.34	.48
0 - 14	29.48	24.88	20.87	30.65	25.67	21.43	28.37	24.11	20.32
20 - 34	24.48	24.19	23.29	24.97	24.83	23.81	24.01	23.56	22.79
35 - 44	13.40	13.70	14.91	13.04	13.89	15.16	13.74	13.52	14.67
45 - 64	17.20	21.08	23.70	16.17	20.10	23.46	18.17	22.02	23.93
15 - 64	64.07	67.57	69.30	63.50	67.81	69.99	64.62	67.53	68.62
65 +	6.45	7.46	9.83	5.85	6.52	8.58	7.01	8.36	11.06

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	294,000	306,000	316,000	324,000	330,000	334,000	337,000
0 - 4	29,000	28,000	26,500	25,400	24,200	23,300	22,100
5 - 9	26,000	27,900	27,100	25,800	24,800	23,700	22,800
10 - 14	28,400	25,700	27,500	26,800	25,800	24,600	23,800
15 - 19	25,600	28,100	25,400	27,300	26,500	25,500	24,400
20 - 24	21,400	25,100	27,600	25,000	26,900	26,100	25,000
25 - 29	25,400	21,000	24,600	27,000	24,600	26,400	25,700
30 - 34	23,800	24,800	20,500	24,200	26,600	24,200	26,000
35 - 39	21,800	23,200	24,200	20,100	23,700	26,100	23,800
40 - 44	18,600	21,200	22,600	23,700	19,700	23,300	25,600
45 - 49	16,100	18,000	20,600	22,000	23,000	19,200	22,700
50 - 54	14,300	15,400	17,200	19,800	21,200	22,200	18,500
55 - 59	12,500	13,400	14,500	16,200	18,700	20,000	21,000
60 - 64	10,600	11,300	12,200	13,300	14,900	17,100	18,400
65 - 69	8,350	9,150	9,800	10,600	11,600	13,100	15,100
70 - 74	6,010	6,590	7,260	7,830	8,540	9,360	10,600
75 - 79	3,800	4,100	4,530	5,030	5,470	6,000	6,610
80 - 84	1,730	2,030	2,210	2,470	2,780	3,040	3,360
85 +	721	815	973	1,100	1,250	1,440	1,620
0 - 14	83,400	81,600	81,100	78,000	74,400	71,500	68,500
20 - 34	70,600	70,900	72,800	76,200	78,000	76,800	76,800
35 - 44	40,400	44,500	46,800	43,700	43,400	49,300	49,400
45 - 64	53,400	58,100	64,500	71,200	77,700	78,500	80,600
15 - 64	190,000	202,000	200,000	218,000	226,000	230,000	231,000
65 +	20,600	22,700	24,800	27,000	29,600	32,900	37,300

## APPENDIX IV—EUROPE (EXCLUDING THE U.S.S.R.)

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	399,000	408,000	415,000	419,000	421,000	421,000	417,000
0 - 4	35,200	32,400	30,300	28,700	28,000	25,000	22,800
5 - 9	34,900	34,100	31,500	29,800	28,100	26,800	24,600
10 - 14	36,100	34,600	33,800	31,300	29,300	27,900	26,300
15 - 19	35,000	35,700	34,200	33,500	31,000	29,100	27,700
20 - 24	28,600	34,400	35,200	33,700	33,100	30,800	28,800
25 - 29	33,600	28,000	33,800	34,600	33,200	32,600	30,200
30 - 34	33,000	32,900	27,500	33,200	34,100	32,700	32,200
35 - 39	30,200	32,300	32,200	27,000	32,600	33,500	32,100
40 - 44	26,000	29,400	31,500	31,500	26,500	32,000	33,000
45 - 49	22,600	25,100	28,400	30,500	30,600	25,800	31,300
50 - 54	20,200	21,500	24,000	27,200	29,300	29,400	24,800
55 - 59	18,100	18,900	20,100	22,500	25,600	27,600	27,800
60 - 64	15,600	16,300	17,100	18,300	20,500	23,300	25,200
65 - 69	12,200	13,300	14,000	14,700	15,800	17,800	20,300
70 - 74	8,720	9,500	10,400	11,000	11,700	12,600	14,300
75 - 79	5,360	5,830	6,420	7,090	7,570	8,100	8,800
80 - 84	2,420	2,780	3,070	3,430	3,840	4,140	4,470
85 +	965	1,100	1,300	1,480	1,690	1,940	2,160
0 - 14	106,000	101,000	95,600	89,500	84,400	79,400	73,700
20 - 34	95,100	95,300	96,500	102,000	100,000	96,000	91,200
35 - 44	56,200	61,600	63,700	58,500	59,100	65,600	65,100
45 - 64	76,400	81,800	89,700	98,500	106,000	106,000	109,000
15 - 64	263,000	275,000	284,000	292,000	296,000	297,000	293,000
65 +	29,700	32,500	35,100	37,700	40,600	44,600	50,000

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	195,000	200,000	204,000	207,000	208,000	209,000	207,000
0 - 4	17,900	16,500	15,400	14,800	13,800	12,800	11,900
5 - 9	17,700	17,400	16,000	15,100	14,300	13,500	12,600
10 - 14	18,300	17,600	17,200	16,800	16,000	14,800	13,400
15 - 19	17,800	18,100	17,400	17,000	16,800	14,800	14,100
20 - 24	14,400	17,500	17,800	17,100	16,800	15,800	14,900
25 - 29	16,800	14,200	17,200	17,600	16,900	16,600	16,400
30 - 34	16,400	16,400	13,900	16,800	17,300	16,600	16,400
35 - 39	14,800	16,100	16,100	13,600	16,600	17,000	16,300
40 - 44	12,300	14,400	15,700	15,700	13,300	16,200	16,700
45 - 49	10,300	11,800	13,900	15,100	15,200	13,000	15,800
50 - 54	9,310	9,770	11,200	13,200	14,400	14,600	12,400
55 - 59	8,360	8,600	9,050	10,400	12,300	13,500	13,600
60 - 64	7,230	7,430	7,680	8,110	9,370	11,100	12,200
65 - 69	5,660	6,050	6,240	6,490	6,890	8,000	9,520
70 - 74	3,950	4,290	4,630	4,810	5,030	5,390	6,290
75 - 79	2,340	2,560	2,820	3,070	3,220	3,400	3,660
80 - 84	1,000	1,160	1,280	1,440	1,600	1,700	1,820
85 +	364	414	487	560	647	736	810
0 - 14	54,000	51,400	48,700	45,600	43,000	40,500	37,700
20 - 34	47,600	48,000	48,900	51,500	51,000	48,800	46,400
35 - 44	27,100	30,500	31,700	29,300	29,900	35,300	33,000
45 - 64	35,200	37,600	41,800	46,900	51,400	52,100	54,100
15 - 64	128,000	134,000	140,000	145,000	148,000	149,000	148,000
65 +	13,300	14,500	15,500	16,400	17,400	19,200	22,100

## APPENDIX IV—EUROPE (EXCLUDING THE U.S.S.R.)

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.83	6.83	5.46	9.19	7.08	5.63	8.50	6.60	5.30
5 - 9	8.76	7.05	5.90	9.10	7.28	6.06	8.44	6.82	5.74
10 - 14	9.06	7.46	6.31	9.40	7.70	6.47	8.74	7.23	6.15
15 - 19	8.77	7.99	6.64	9.10	8.24	6.81	8.44	7.75	6.48
20 - 24	7.17	8.04	6.91	7.40	8.29	7.07	6.95	7.80	6.75
25 - 29	8.42	8.25	7.26	8.60	8.49	7.42	8.24	8.02	7.09
30 - 34	8.27	7.92	7.73	8.43	8.15	7.90	8.12	7.69	7.56
35 - 39	7.57	6.44	7.71	7.60	6.59	7.85	7.54	6.29	7.57
40 - 44	6.53	7.51	7.91	6.30	7.60	8.05	6.75	7.43	7.77
45 - 49	5.66	7.29	7.50	5.29	7.32	7.62	6.01	7.25	7.39
50 - 54	5.08	6.49	5.95	4.77	6.39	5.99	5.37	6.59	5.92
55 - 59	4.53	5.37	6.66	4.29	5.04	6.57	4.77	5.69	6.75
60 - 64	3.90	4.36	6.05	3.71	3.92	5.89	4.09	4.78	6.21
65 - 69	3.07	3.51	4.87	2.90	3.14	4.59	3.22	3.88	5.15
70 - 74	2.19	2.63	3.43	2.03	2.33	3.03	2.34	2.92	3.82
75 - 79	1.34	1.69	2.11	1.20	1.48	1.77	1.48	1.89	2.46
80 - 84	0.61	0.82	1.07	0.51	0.70	0.88	0.70	0.94	1.27
85 +	0.24	0.35	0.52	0.19	0.27	0.39	0.30	0.43	0.64
0 - 14	26.66	21.34	17.67	27.68	22.06	18.16	25.68	20.65	17.19
20 - 34	23.86	24.21	21.89	24.42	24.93	22.39	23.31	23.52	21.39
35 - 44	14.10	13.95	15.62	13.90	14.19	15.90	14.29	13.72	15.34
45 - 64	19.17	23.50	26.17	18.06	22.67	26.08	20.23	24.32	26.26
15 - 64	65.90	69.66	70.32	65.49	70.02	71.18	66.28	69.30	69.47
65 +	7.45	9.00	12.01	6.83	7.92	10.66	8.03	10.05	13.34

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	204,000	208,000	211,000	213,000	213,000	212,000	209,000
0 - 4	17,300	15,800	14,800	14,000	13,300	12,800	11,100
5 - 9	17,200	16,800	15,800	14,500	13,800	13,000	12,000
10 - 14	17,800	17,000	16,600	15,400	14,400	13,700	12,800
15 - 19	17,200	17,600	16,800	16,500	15,200	14,300	13,800
20 - 24	14,100	16,900	17,300	16,600	16,300	15,000	14,100
25 - 29	16,800	13,900	16,600	17,000	16,100	16,000	14,800
30 - 34	16,500	16,500	13,600	16,400	16,800	16,100	15,800
35 - 39	15,400	16,200	16,100	13,400	16,100	16,500	15,900
40 - 44	13,800	15,000	15,800	15,800	13,100	15,800	16,300
45 - 49	12,200	13,300	14,600	15,400	15,400	12,600	15,500
50 - 54	10,900	11,700	12,800	14,000	14,900	14,900	12,400
55 - 59	9,710	10,300	11,100	12,100	13,300	14,100	14,100
60 - 64	8,320	8,870	9,430	10,200	11,100	12,200	13,000
65 - 69	6,560	7,210	7,710	8,240	8,930	9,820	10,800
70 - 74	4,760	5,210	5,760	6,200	6,660	7,240	8,010
75 - 79	3,020	3,270	3,610	4,020	4,350	4,710	5,140
80 - 84	1,420	1,630	1,790	1,990	2,240	2,440	2,650
85 +	601	688	814	919	1,050	1,200	1,350
0 - 14	52,300	49,700	46,900	43,900	41,300	38,800	36,000
20 - 34	47,500	47,300	47,600	50,000	49,400	47,200	44,800
35 - 44	25,100	31,200	31,900	29,200	29,200	32,300	32,100
45 - 64	41,200	44,200	47,900	51,700	54,600	54,000	55,000
15 - 64	135,000	140,000	144,000	147,000	148,000	148,000	145,000
65 +	16,400	18,000	19,700	21,400	23,200	25,400	27,900



## APPENDIX IV—NORTHWESTERN AND CENTRAL EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	234,000	236,000	237,000	237,000	234,000	231,000	225,000
0 - 4	17,900	18,400	14,800	13,700	12,800	11,500	10,400
5 - 9	17,400	17,600	16,200	14,800	13,600	12,500	11,400
10 - 14	18,800	17,300	17,500	16,100	14,700	13,500	12,400
15 - 19	19,400	18,600	17,200	17,400	16,000	14,600	13,800
20 - 24	15,900	19,200	18,400	17,000	17,200	16,800	14,500
25 - 29	19,300	15,600	18,900	18,200	16,800	17,100	15,700
30 - 34	19,700	19,000	15,400	18,700	18,000	16,600	16,900
35 - 39	18,700	19,400	18,600	15,200	18,400	17,700	16,400
40 - 44	16,500	18,300	19,000	18,300	14,900	18,200	17,500
45 - 49	14,400	16,000	17,800	18,500	17,900	14,600	17,800
50 - 54	13,100	13,800	15,400	17,100	17,800	17,200	14,100
55 - 59	11,900	12,300	12,900	14,500	16,100	16,900	16,300
60 - 64	10,500	10,800	11,200	11,800	13,300	14,800	15,500
65 - 69	8,250	9,040	9,290	9,730	10,300	11,600	13,000
70 - 74	5,850	6,480	7,150	7,410	7,800	8,320	9,390
75 - 79	3,590	3,960	4,430	4,930	5,150	5,460	5,860
80 - 84	1,660	1,900	2,120	2,400	2,700	2,850	3,050
85 +	655	767	905	1,030	1,200	1,380	1,510
0 - 14	54,200	51,400	48,600	44,600	40,800	37,500	34,200
20 - 34	54,900	53,800	52,700	53,800	52,000	49,500	47,100
35 - 44	35,200	37,700	37,600	33,500	33,400	35,900	34,000
45 - 64	49,900	52,900	57,300	61,900	65,100	63,500	63,800
15 - 64	159,000	163,000	165,000	167,000	166,000	164,000	158,000
65 +	20,000	22,100	23,900	25,500	27,200	29,600	32,800

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	114,000	115,000	116,000	116,000	115,000	114,000	112,000
0 - 4	9,120	8,350	7,820	7,000	6,430	5,880	5,320
5 - 9	8,840	8,760	8,520	7,520	6,810	6,360	5,840
10 - 14	9,510	8,780	8,900	8,170	7,480	6,890	6,340
15 - 19	9,860	9,430	8,700	8,830	8,100	7,430	6,880
20 - 24	8,030	9,730	9,310	8,610	8,750	8,020	7,370
25 - 29	9,660	7,910	9,580	9,180	8,500	8,660	7,880
30 - 34	9,850	9,490	7,790	9,450	9,080	8,410	8,570
35 - 39	9,240	9,660	9,330	7,660	9,320	8,960	8,310
40 - 44	7,780	9,010	9,450	9,150	7,530	9,170	8,820
45 - 49	6,550	7,510	8,730	9,180	8,900	7,340	8,960
50 - 54	6,030	6,220	7,170	8,340	8,810	8,560	7,080
55 - 59	5,490	5,600	5,810	6,700	7,830	8,280	8,050
60 - 64	4,900	4,920	5,040	5,240	6,070	7,110	7,530
65 - 69	3,820	4,130	4,160	4,290	4,480	5,210	6,140
70 - 74	2,630	2,930	3,190	3,240	3,560	3,540	4,140
75 - 79	1,540	1,720	1,940	2,130	2,190	2,290	2,430
80 - 84	669	773	880	1,010	1,130	1,170	1,240
85 +	237	280	333	391	460	528	573
0 - 14	27,500	26,100	24,700	22,700	20,800	19,100	17,500
20 - 34	27,500	27,100	26,700	27,200	26,300	25,100	23,900
35 - 44	17,000	18,700	18,800	16,800	16,800	18,100	17,100
45 - 64	23,000	24,300	26,700	29,500	31,600	31,300	31,600
15 - 64	77,400	79,500	80,900	82,300	82,900	82,000	79,500
65 +	8,900	9,830	10,500	11,000	11,600	12,700	14,500

## APPENDIX IV—NORTHWESTERN AND CENTRAL EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.68	5.80	4.60	8.01	6.03	4.77	7.36	5.57	4.43
5 - 9	7.46	6.24	5.07	7.77	6.48	5.24	7.17	6.01	4.91
10 - 14	8.05	6.79	5.51	8.36	7.04	5.68	7.76	6.55	5.35
15 - 19	8.33	7.36	5.98	8.67	7.61	6.15	8.00	7.11	5.81
20 - 24	6.80	7.18	6.43	7.06	7.42	6.61	6.55	6.96	6.26
25 - 29	8.24	7.68	6.96	8.49	7.91	7.13	8.01	7.46	6.78
30 - 34	8.45	7.89	7.51	8.66	8.14	7.69	8.26	7.64	7.33
35 - 39	8.00	6.41	7.30	8.12	6.60	7.45	7.88	6.23	7.15
40 - 44	7.07	7.74	7.78	6.84	7.88	7.91	7.29	7.60	7.65
45 - 49	6.15	7.83	7.90	5.75	7.90	8.03	6.53	7.75	7.77
50 - 54	5.62	7.20	6.28	5.30	7.18	6.35	5.92	7.22	6.20
55 - 59	5.08	6.12	7.26	4.83	5.77	7.22	5.32	6.45	7.29
60 - 64	4.50	5.00	6.88	4.31	4.51	6.75	4.69	5.46	7.01
65 - 69	3.53	4.11	5.75	3.36	3.70	5.50	3.69	4.51	6.00
70 - 74	2.50	3.13	4.17	2.31	2.79	3.71	2.68	3.46	4.62
75 - 79	1.54	2.08	2.60	1.36	1.84	2.18	1.71	2.32	3.01
80 - 84	0.71	1.01	1.36	0.59	0.87	1.11	0.83	1.15	1.59
85 +	0.28	0.44	0.67	0.21	0.34	0.51	0.35	0.53	0.83
0 - 14	23.19	18.83	15.18	24.14	19.55	15.69	22.28	18.13	14.69
20 - 34	23.49	22.75	20.89	24.21	23.47	21.43	22.82	22.06	20.37
35 - 44	15.07	14.15	15.08	14.96	14.48	15.36	15.17	13.83	14.80
45 - 64	21.36	26.15	28.32	20.19	25.37	28.36	22.46	26.89	28.28
15 - 64	68.25	70.40	70.26	68.03	70.92	71.29	68.46	69.90	69.26
65 +	8.56	10.77	14.55	7.83	9.53	13.02	9.26	11.97	16.05

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	120,000	121,000	121,000	121,000	119,000	117,000	114,000
0 - 4	8,810	8,040	7,330	6,720	5,160	5,430	5,040
5 - 9	8,590	8,680	7,840	7,240	6,050	6,110	5,680
10 - 14	9,290	8,550	8,620	7,800	7,210	6,680	6,080
15 - 19	9,580	9,210	8,490	8,580	7,850	7,170	6,600
20 - 24	7,850	9,460	9,100	8,390	8,500	7,780	7,180
25 - 29	9,600	7,730	9,330	8,990	8,290	8,410	7,710
30 - 34	9,890	9,460	7,620	9,220	8,900	8,210	8,330
35 - 39	9,440	9,730	9,300	7,510	9,100	8,790	8,130
40 - 44	8,740	9,250	9,560	9,170	7,410	8,990	8,700
45 - 49	7,830	8,510	9,030	9,350	8,970	7,280	8,840
50 - 54	7,090	7,540	8,200	8,710	9,040	8,680	7,050
55 - 59	6,370	6,710	7,140	7,780	8,280	8,600	8,290
60 - 64	5,620	5,860	6,180	6,590	7,190	7,670	7,970
65 - 69	4,420	4,910	5,130	5,440	5,830	6,390	6,820
70 - 74	3,210	3,550	3,960	4,170	4,440	4,780	5,250
75 - 79	2,050	2,240	2,490	2,790	2,960	3,170	3,430
80 - 84	993	1,120	1,240	1,390	1,580	1,680	1,810
85 +	418	487	572	643	738	851	940
0 - 14	26,700	25,300	23,900	21,900	20,000	18,400	16,700
20 - 34	27,300	26,700	26,000	26,600	25,700	24,400	23,200
35 - 44	17,200	19,000	18,900	16,700	16,500	17,800	16,800
45 - 64	26,900	28,600	30,600	32,400	33,500	32,200	32,200
15 - 64	82,000	83,400	84,000	84,300	83,600	81,600	78,700
65 +	11,100	12,300	13,400	14,400	15,500	16,900	18,300

## APPENDIX IV—UNITED KINGDOM AND IRELAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	50,200	50,600	50,600	50,200	49,400	48,200	46,800
0 - 4	3,580	3,350	3,030	2,720	2,450	2,200	1,880
5 - 9	3,580	3,510	3,300	2,800	2,680	2,480	2,180
10 - 14	3,830	3,560	3,490	2,280	2,880	2,680	2,410
15 - 19	4,080	3,800	3,530	3,470	2,280	2,980	2,670
20 - 24	4,000	4,030	3,760	3,510	3,440	3,230	2,840
25 - 29	4,150	3,950	3,980	3,720	3,460	3,400	2,200
30 - 34	4,060	4,080	3,900	3,940	3,620	3,430	3,380
35 - 39	3,810	4,010	4,020	3,840	3,890	3,640	3,400
40 - 44	3,470	3,730	3,930	3,950	3,790	3,830	3,600
45 - 49	3,150	3,360	3,640	3,830	3,870	3,710	3,760
50 - 54	2,930	3,020	3,220	3,490	3,680	3,730	3,590
55 - 59	2,720	2,760	2,830	3,040	3,300	3,490	3,530
60 - 64	2,380	2,460	2,510	2,590	2,790	3,020	3,210
65 - 69	1,880	2,040	2,130	2,180	2,260	2,440	2,660
70 - 74	1,320	1,480	1,620	1,700	1,750	1,820	1,970
75 - 79	797	897	1,010	1,120	1,180	1,230	1,290
80 - 84	369	428	487	556	618	662	691
85 +	150	191	216	253	295	337	372
0 - 14	11,000	10,400	9,820	9,000	8,120	7,310	6,550
20 - 34	12,200	12,100	11,600	11,200	10,600	10,100	9,520
35 - 44	7,270	7,740	7,950	7,800	7,680	7,480	7,000
45 - 64	11,200	11,600	12,200	12,900	13,600	14,000	14,100
15 - 64	34,700	35,200	35,300	35,400	35,200	34,400	33,300
65 +	4,520	5,030	5,460	5,800	6,100	6,480	6,980

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	24,300	24,500	24,500	24,400	24,100	23,600	23,000
0 - 4	1,820	1,710	1,500	1,390	1,250	1,120	1,000
5 - 9	1,810	1,780	1,660	1,530	1,370	1,240	1,110
10 - 14	1,930	1,800	1,770	1,670	1,520	1,370	1,230
15 - 19	2,060	1,910	1,790	1,760	1,680	1,500	1,380
20 - 24	2,010	2,040	1,900	1,770	1,740	1,640	1,480
25 - 29	2,060	1,990	2,010	1,880	1,750	1,730	1,630
30 - 34	1,980	2,020	1,960	1,980	1,860	1,730	1,710
35 - 39	1,830	1,950	1,990	1,930	1,960	1,840	1,720
40 - 44	1,620	1,790	1,910	1,950	1,910	1,930	1,810
45 - 49	1,450	1,560	1,740	1,850	1,910	1,860	1,880
50 - 54	1,350	1,370	1,490	1,660	1,780	1,830	1,790
55 - 59	1,260	1,260	1,280	1,390	1,560	1,670	1,720
60 - 64	1,100	1,120	1,130	1,160	1,270	1,420	1,520
65 - 69	873	926	947	958	985	1,080	1,220
70 - 74	590	661	708	729	743	769	851
75 - 79	332	382	433	468	487	502	525
80 - 84	141	166	194	225	246	260	271
85 +	49.8	60.4	73.3	89.0	106	120	131
0 - 14	5,560	5,290	4,990	4,580	4,140	3,730	3,340
20 - 34	6,040	6,040	5,870	5,630	5,350	5,100	4,830
35 - 44	3,450	3,740	3,900	3,890	3,860	3,770	3,530
45 - 64	5,160	5,320	5,640	6,060	6,510	6,770	6,520
15 - 64	16,700	17,000	17,200	17,300	17,400	17,100	16,600
65 +	1,980	2,190	2,350	2,670	2,570	2,730	3,000

## APPENDIX IV—UNITED KINGDOM AND IRELAND

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.12	5.42	4.19	7.50	5.64	4.36	6.76	5.17	4.03
5 - 9	7.12	5.97	1.65	7.47	6.27	4.83	6.78	5.68	4.47
10 - 14	7.62	6.54	5.15	7.95	6.83	5.35	7.31	6.26	4.97
15 - 19	9.12	6.91	5.71	8.50	7.20	5.92	7.78	6.65	5.51
20 - 24	7.97	6.99	6.28	8.29	7.27	6.49	7.66	6.72	6.09
25 - 29	8.25	7.42	6.84	8.48	7.67	7.08	8.04	7.16	6.62
30 - 34	8.08	7.85	7.21	8.15	8.14	7.46	8.02	7.58	6.98
35 - 39	7.50	7.66	7.27	7.54	7.93	7.49	7.61	7.41	7.05
40 - 44	6.90	7.88	7.69	6.68	8.02	7.87	7.11	7.75	7.52
45 - 49	6.27	7.64	8.03	5.97	7.60	8.19	6.56	7.68	7.87
50 - 54	5.83	6.95	7.66	5.56	6.80	7.80	6.08	7.09	7.53
55 - 59	5.41	6.06	7.54	5.18	5.70	7.48	5.63	6.39	7.59
60 - 64	4.74	5.16	6.86	4.55	4.74	6.63	4.91	5.56	7.08
65 - 69	3.74	4.34	5.68	3.60	3.93	5.32	3.88	4.72	6.04
70 - 74	2.63	3.38	4.21	2.43	2.99	3.70	2.81	3.76	4.70
75 - 79	1.59	2.23	2.75	1.37	1.92	2.28	1.79	2.52	3.19
80 - 84	0.73	1.11	1.48	0.58	0.92	1.18	0.88	1.28	1.76
85 +	0.30	0.50	0.79	0.21	0.36	0.57	0.38	0.63	1.01
0 - 14	21.86	17.93	14.00	22.93	18.79	14.55	20.86	17.12	13.47
20 - 34	24.30	22.26	20.34	24.92	23.10	21.02	23.72	21.46	19.68
35 - 44	14.48	15.54	14.96	14.22	15.95	15.36	14.72	15.16	14.57
45 - 64	22.25	25.80	30.09	21.26	24.84	30.10	23.18	26.71	30.07
15 - 64	69.16	70.52	71.10	68.89	71.09	72.40	69.40	69.98	69.83
65 +	8.99	11.56	14.91	8.18	10.13	13.05	9.74	12.91	16.70

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	26,000	26,000	26,100	25,800	25,300	24,600	23,800
0 - 4	1,760	1,600	1,400	1,330	1,300	1,090	959
5 - 9	1,760	1,730	1,620	1,470	1,330	1,190	1,070
10 - 14	1,900	1,760	1,720	1,620	1,400	1,330	1,180
15 - 19	2,020	1,890	1,750	1,710	1,600	1,450	1,310
20 - 24	1,990	2,000	1,860	1,730	1,700	1,590	1,480
25 - 29	2,090	1,900	1,970	1,850	1,710	1,680	1,580
30 - 34	2,080	2,060	1,940	1,960	1,830	1,690	1,660
35 - 39	1,980	2,060	2,030	1,910	1,930	1,810	1,680
40 - 44	1,850	1,940	2,020	2,000	1,890	1,900	1,790
45 - 49	1,700	1,800	1,900	1,980	1,960	1,860	1,870
50 - 54	1,580	1,640	1,740	1,830	1,910	1,900	1,790
55 - 59	1,460	1,500	1,550	1,650	1,740	1,820	1,810
60 - 64	1,280	1,340	1,380	1,430	1,530	1,610	1,690
65 - 69	1,010	1,120	1,180	1,220	1,280	1,360	1,440
70 - 74	731	817	909	969	1,000	1,050	1,120
75 - 79	465	515	579	649	696	724	761
80 - 84	228	262	292	331	372	402	420
85 +	99.8	121	143	164	189	217	240
0 - 14	5,420	5,130	4,830	4,420	3,980	3,580	3,210
20 - 34	6,160	6,020	5,770	5,530	5,240	4,960	4,690
35 - 44	3,830	4,000	4,040	3,910	3,810	3,710	3,470
45 - 64	6,020	6,280	6,570	6,890	7,130	7,180	7,160
15 - 64	18,000	18,200	18,100	18,000	17,800	17,300	16,500
65 +	2,530	2,830	3,110	3,330	3,540	3,750	3,980

## APPENDIX IV—ENGLAND AND WALES

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	40,900	41,100	40,900	40,400	39,600	38,400	37,100
0 - 4	2,790	2,590	2,320	2,080	1,840	1,840	1,150
5 - 9	2,800	2,740	2,550	2,280	2,040	1,820	1,820
10 - 14	3,020	2,790	2,720	2,540	2,280	2,040	1,810
15 - 19	3,250	3,000	2,770	2,710	2,520	2,260	2,020
20 - 24	3,210	3,210	2,970	2,750	2,690	2,500	2,250
25 - 29	3,380	3,170	3,170	2,940	2,710	2,660	2,180
30 - 34	3,360	3,130	3,130	3,140	2,710	2,770	2,640
35 - 39	3,170	3,120	3,280	3,000	3,100	2,880	2,670
40 - 44	2,880	3,110	3,260	3,230	3,050	3,040	2,950
45 - 49	2,630	2,790	3,040	3,180	3,160	2,910	3,010
50 - 54	2,450	2,520	2,680	2,910	3,060	3,050	2,890
55 - 59	2,270	2,310	2,370	2,530	2,760	2,700	2,930
60 - 64	1,980	2,060	2,110	2,170	2,330	2,530	2,570
65 - 69	1,550	1,700	1,790	1,830	1,900	2,040	2,230
70 - 74	1,080	1,220	1,350	1,430	1,470	1,530	1,650
75 - 79	642	730	834	931	993	1,070	1,080
80 - 84	294	342	393	456	513	553	579
85 +	118	141	168	194	236	273	304
0 - 14	8,610	9,120	7,590	6,890	6,160	5,490	4,890
20 - 34	9,350	7,710	9,270	8,810	8,320	7,850	7,370
35 - 44	6,050	6,430	6,540	6,320	6,150	5,940	5,520
45 - 64	9,330	9,680	10,200	10,800	11,300	11,500	11,500
15 - 64	28,600	29,900	28,800	28,700	28,300	27,500	26,400
65 +	3,680	4,130	4,530	4,840	5,110	5,420	5,840

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	19,600	19,800	19,700	19,500	19,200	18,700	18,100
0 - 4	1,420	1,320	1,180	1,030	838	837	748
5 - 9	1,420	1,390	1,300	1,170	1,040	898	828
10 - 14	1,520	1,410	1,380	1,290	1,180	1,040	824
15 - 19	1,640	1,510	1,400	1,370	1,280	1,150	1,030
20 - 24	1,610	1,620	1,500	1,190	1,360	1,220	1,240
25 - 29	1,670	1,590	1,600	1,480	1,370	1,350	1,260
30 - 34	1,630	1,640	1,570	1,580	1,470	1,360	1,340
35 - 39	1,520	1,610	1,620	1,550	1,560	1,450	1,350
40 - 44	1,340	1,490	1,540	1,590	1,530	1,540	1,430
45 - 49	1,200	1,290	1,450	1,530	1,550	1,490	1,500
50 - 54	1,120	1,140	1,230	1,180	1,470	1,490	1,440
55 - 59	1,040	1,050	1,060	1,150	1,300	1,380	1,400
60 - 64	908	930	939	960	1,050	1,180	1,260
65 - 69	710	762	785	797	818	895	1,020
70 - 74	474	517	582	604	618	630	705
75 - 79	264	305	350	383	402	416	435
80 - 84	110	130	153	180	200	213	223
85 +	37	45	54	67	81.6	93.7	104
0 - 14	4,360	4,120	3,860	3,510	3,140	2,810	2,500
20 - 34	4,910	4,450	4,670	4,450	4,200	3,980	3,740
35 - 44	2,860	3,100	3,200	3,140	3,090	2,990	2,780
45 - 64	4,270	4,410	4,680	5,020	5,370	5,540	5,600
15 - 64	13,700	13,900	13,900	14,000	13,900	13,700	13,200
65 +	1,600	1,780	1,920	2,030	2,120	2,260	2,490

## APPENDIX IV—ENGLAND AND WALES

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	6.83	5.10	3.91	7.23	5.38	4.09	6.45	4.84	3.74
5 - 9	6.85	5.67	4.38	7.23	5.99	4.57	6.50	5.37	4.19
10 - 14	7.39	6.29	4.89	7.74	6.61	5.10	7.06	5.99	4.68
15 - 19	7.95	6.71	5.45	8.35	7.02	5.68	7.58	6.43	5.24
20 - 24	7.85	6.81	6.07	8.20	7.12	6.29	7.54	6.52	5.86
25 - 29	8.27	7.28	6.69	8.51	7.58	6.95	8.05	7.00	6.44
30 - 34	8.22	7.78	7.12	8.30	8.09	7.39	8.15	7.48	6.86
35 - 39	7.76	7.65	7.20	7.74	7.94	7.45	7.77	7.38	6.96
40 - 44	7.05	8.00	7.68	6.82	8.14	7.89	7.25	7.86	7.49
45 - 49	6.44	7.88	8.09	6.11	7.84	8.27	6.73	7.91	7.91
50 - 54	6.00	7.21	7.79	5.70	7.07	7.94	6.26	7.34	7.65
55 - 59	5.55	6.27	7.79	5.30	5.89	7.72	5.79	6.62	7.86
60 - 64	4.84	5.37	7.20	4.62	4.92	6.95	5.04	5.80	7.44
65 - 69	3.79	4.52	6.01	3.62	4.08	5.63	3.95	4.94	6.38
70 - 74	2.63	3.53	4.44	2.41	3.09	3.89	2.84	3.94	4.96
75 - 79	1.57	2.31	2.91	1.34	1.96	2.40	1.78	2.63	3.40
80 - 84	0.72	1.13	1.56	0.56	0.92	1.23	0.87	1.32	1.88
85 +	0.29	0.49	0.82	0.19	0.34	0.57	0.38	0.63	1.06
0 - 14	21.07	17.06	13.18	22.21	17.98	13.76	20.02	16.21	12.62
20 - 34	24.35	21.87	19.87	25.01	22.80	20.63	23.74	21.00	19.13
35 - 44	14.80	15.65	14.88	14.57	16.08	15.33	15.02	15.25	14.45
45 - 64	22.83	26.72	30.87	21.74	25.72	30.88	23.83	27.67	30.86
15 - 64	69.93	70.96	71.08	69.67	71.61	72.52	70.17	70.34	69.70
65 +	9.00	11.98	15.74	8.13	10.41	13.72	9.81	13.45	17.68

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	21,200	21,300	21,200	20,900	20,400	19,700	19,000
0 - 4	1,370	1,270	1,140	1,010	899	801	709
5 - 9	1,380	1,350	1,250	1,180	1,000	901	795
10 - 14	1,500	1,380	1,340	1,250	1,180	997	888
15 - 19	1,610	1,490	1,370	1,340	1,240	1,110	988
20 - 24	1,600	1,590	1,470	1,360	1,330	1,230	1,110
25 - 29	1,710	1,580	1,570	1,460	1,340	1,310	1,220
30 - 34	1,730	1,690	1,560	1,560	1,450	1,330	1,300
35 - 39	1,650	1,710	1,660	1,540	1,540	1,430	1,320
40 - 44	1,540	1,620	1,680	1,640	1,520	1,520	1,420
45 - 49	1,430	1,500	1,590	1,650	1,610	1,500	1,500
50 - 54	1,330	1,380	1,450	1,530	1,590	1,560	1,450
55 - 59	1,230	1,260	1,310	1,380	1,460	1,520	1,490
60 - 64	1,070	1,130	1,170	1,210	1,280	1,350	1,410
65 - 69	839	938	1,000	1,030	1,080	1,140	1,210
70 - 74	602	682	767	821	852	889	941
75 - 79	378	425	484	548	591	615	645
80 - 84	184	212	240	276	313	340	356
85 +	80.3	95.6	113	131	154	179	200
0 - 14	4,250	4,000	3,730	3,380	3,020	2,690	2,390
20 - 34	5,040	4,860	4,600	4,380	4,120	3,870	3,630
35 - 44	3,190	3,330	3,340	3,180	3,060	2,950	2,740
45 - 64	5,060	5,270	5,520	5,770	5,940	5,930	5,850
15 - 64	14,900	15,000	14,800	14,700	14,400	13,900	13,200
65 +	2,080	2,350	2,600	2,810	2,990	3,160	3,350

## APPENDIX IV — IRELAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,020	3,080	3,140	3,190	3,230	3,240	3,240
0 - 4	263	252	251	237	221	234	188
5 - 9	264	258	253	247	235	219	202
10 - 14	272	262	256	232	245	233	218
15 - 19	276	269	260	254	250	244	233
20 - 24	262	272	266	257	252	248	241
25 - 29	240	256	268	262	254	248	245
30 - 34	203	235	252	264	258	259	245
35 - 39	183	199	230	247	259	254	247
40 - 44	180	178	194	225	242	254	250
45 - 49	157	173	172	188	219	236	248
50 - 54	150	149	165	164	180	210	227
55 - 59	142	139	139	154	154	169	197
60 - 64	129	127	125	125	140	140	155
65 - 69	111	109	108	107	108	121	122
70 - 74	87.1	86.4	85.8	85.9	85.4	86.4	97.5
75 - 79	58.1	61.2	61.2	61.1	61.5	61.5	62.6
80 - 84	29.0	34.5	36.6	36.8	36.9	37.5	37.6
85 +	13.2	17.8	22.0	24.5	25.7	26.4	27.2
0 - 14	799	777	760	736	701	656	608
20 - 34	706	763	786	783	764	746	731
35 - 44	363	377	424	472	501	508	497
45 - 64	577	589	601	632	693	755	827
15 - 64	1,920	2,000	2,070	2,140	2,210	2,250	2,290
65 +	298	309	314	316	317	333	347

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,550	1,580	1,610	1,630	1,650	1,650	1,650
0 - 4	134	131	128	121	113	104	86.3
5 - 9	134	131	128	128	120	112	108
10 - 14	138	133	130	128	125	119	111
15 - 19	141	136	132	129	127	124	119
20 - 24	136	139	135	130	128	126	123
25 - 29	127	133	137	133	129	126	125
30 - 34	106	124	131	135	131	127	125
35 - 39	93.4	104	122	129	133	129	126
40 - 44	90.9	90.8	101	119	126	130	127
45 - 49	80.5	87.6	87.8	98.1	116	123	127
50 - 54	76.9	76.3	83.3	83.8	93.8	111	118
55 - 59	73.4	71.2	70.9	77.7	78.3	88.1	104
60 - 64	47.2	65.5	63.8	63.8	70.1	70.9	80.0
65 - 69	57.9	56.4	55.3	54.2	54.4	60.1	61.1
70 - 74	44.5	44.7	44.0	43.4	42.7	43.1	47.9
75 - 79	27.1	30.8	31.2	30.9	30.6	30.3	30.7
80 - 84	13.1	15.6	17.9	18.3	18.2	18.2	18.1
85 +	5.66	7.46	9.25	10.9	11.8	12.1	12.4
0 - 14	406	395	387	375	358	335	310
20 - 34	369	396	403	398	388	379	373
35 - 44	184	195	223	248	259	259	253
45 - 64	298	301	306	323	358	393	429
15 - 64	992	1,030	1,060	1,100	1,130	1,160	1,170
65 +	148	155	158	158	158	164	170

## APPENDIX IV—Ireland

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.71	7.42	5.80	8.66	7.42	5.82	8.76	7.43	5.79
5 - 9	8.75	7.74	6.23	8.66	7.72	6.23	8.83	7.75	6.23
10 - 14	9.01	7.89	6.72	8.92	7.85	6.71	9.10	7.94	6.74
15 - 19	9.14	7.96	7.19	9.12	7.91	7.19	9.17	8.00	7.18
20 - 24	8.68	8.05	7.43	8.79	7.97	7.43	8.56	8.13	7.43
25 - 29	7.95	8.21	7.56	8.21	8.15	7.56	7.68	8.26	7.56
30 - 34	6.74	8.27	7.56	6.85	8.28	7.56	6.62	8.26	7.56
35 - 39	6.06	7.74	7.62	6.04	7.91	7.62	6.08	7.56	7.62
40 - 44	5.95	7.05	7.71	5.88	7.30	7.68	6.03	6.79	7.75
45 - 49	5.19	5.89	7.65	5.21	6.01	7.68	5.18	5.76	7.62
50 - 54	4.96	5.15	7.00	4.97	5.14	7.13	4.95	5.16	6.86
55 - 59	4.71	4.83	6.08	4.75	4.76	6.29	4.67	4.91	5.88
60 - 64	4.27	3.93	4.76	4.35	3.91	4.84	4.19	3.94	4.69
65 - 69	3.67	3.36	3.75	3.74	3.32	3.69	3.59	3.39	3.82
70 - 74	2.89	2.69	3.01	2.88	2.66	2.90	2.89	2.72	3.12
75 - 79	1.92	1.91	1.93	1.75	1.89	1.86	2.11	1.93	2.01
80 - 84	0.96	1.15	1.16	0.85	1.12	1.09	1.08	1.18	1.23
85 +	0.44	0.77	0.84	0.37	0.67	0.75	0.51	0.87	0.93
0 - 14	26.47	23.05	18.75	26.25	22.99	18.75	26.70	23.12	18.75
20 - 34	23.37	24.52	22.54	23.86	24.40	22.54	22.86	24.65	22.54
35 - 44	12.01	14.78	15.33	11.92	15.20	15.29	12.11	14.34	15.37
45 - 64	19.13	19.80	25.50	19.27	19.83	25.93	18.98	19.77	25.05
15 - 64	63.65	67.07	70.56	64.16	67.34	70.96	63.12	66.78	70.14
65 +	9.88	9.88	10.69	9.59	9.67	10.29	10.18	10.11	11.11

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,470	1,510	1,540	1,560	1,580	1,590	1,590
0 - 4	129	126	123	116	108	89.8	91.8
5 - 9	130	127	124	121	115	107	88.8
10 - 14	134	129	126	124	120	114	107
15 - 19	135	133	128	125	122	120	114
20 - 24	126	133	131	127	124	122	118
25 - 29	113	123	131	129	125	122	120
30 - 34	97.5	111	121	129	127	123	120
35 - 39	89.5	95.1	108	118	126	125	121
40 - 44	88.7	87.0	92.8	106	116	124	123
45 - 49	76.2	85.6	84.2	90.0	103	113	121
50 - 54	72.8	72.6	81.8	80.6	86.3	98.9	109
55 - 59	68.7	67.9	67.8	76.6	75.7	81.3	93.3
60 - 64	61.6	61.8	61.4	61.6	69.8	69.2	74.5
65 - 69	52.8	52.5	53.1	53.0	53.5	60.9	60.6
70 - 74	42.6	41.7	41.8	42.5	42.7	43.3	49.6
75 - 79	31.0	30.4	30.0	30.2	30.9	31.2	31.9
80 - 84	15.9	18.9	18.7	18.5	18.7	19.3	19.5
85 +	7.53	10.3	12.8	13.6	13.9	14.3	14.8
0 - 14	393	382	373	361	343	321	298
20 - 34	347	367	383	385	376	367	358
35 - 44	178	182	201	224	242	249	244
45 - 64	279	288	295	309	335	362	398
15 - 64	929	970	1,010	1,040	1,080	1,100	1,110
65 +	150	154	156	158	160	169	176



## APPENDIX IV—NORTHERN IRELAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,300	1,330	1,360	1,370	1,380	1,390	1,380
0 - 4	114	112	104	88.9	89.3	82.5	75.8
5 - 9	112	112	110	103	85.7	88.3	81.7
10 - 14	116	111	111	109	103	85.2	87.9
15 - 19	117	115	110	111	108	102	84.7
20 - 24	109	115	114	108	109	107	101
25 - 29	102	107	114	112	107	108	106
30 - 34	95.8	100	106	112	110	105	107
35 - 39	88.5	93.7	98.5	104	110	109	104
40 - 44	81.8	86.1	91.5	96.4	102	108	107
45 - 49	70.8	78.9	83.3	88.6	93.6	98.9	105
50 - 54	63.2	67.1	75.0	79.4	84.7	89.7	95.0
55 - 59	57.7	58.6	62.4	70.0	74.3	79.5	84.4
60 - 64	52.7	51.6	52.7	56.3	63.3	67.5	72.4
65 - 69	45.7	44.8	44.0	45.2	48.5	54.9	58.8
70 - 74	35.3	35.8	35.4	35.0	36.0	38.9	44.3
75 - 79	23.1	24.6	25.1	24.9	24.8	25.8	27.9
80 - 84	11.2	13.3	14.3	14.7	14.7	14.7	15.4
85 +	5.08	6.55	8.06	9.01	9.59	9.91	10.2
0 - 14	342	334	326	309	288	266	245
20 - 34	308	323	333	332	326	321	314
35 - 44	170	180	190	200	212	217	211
45 - 64	244	256	273	294	316	336	357
15 - 64	839	874	906	937	962	975	977
65 +	120	125	127	129	134	144	157

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	636	655	671	682	689	693	693
0 - 4	58.3	57.0	53.4	48.6	48.8	42.3	38.6
5 - 9	56.8	57.2	58.1	52.7	48.0	45.2	41.9
10 - 14	59.2	56.3	56.8	52.8	49.4	48.7	46.0
15 - 19	59.2	58.6	55.9	56.4	55.4	52.1	48.5
20 - 24	53.9	58.4	57.9	55.3	55.9	54.9	51.7
25 - 29	49.5	53.1	57.6	57.1	54.6	55.3	54.4
30 - 34	46.0	48.6	52.3	56.8	56.4	54.0	54.7
35 - 39	42.3	45.1	47.8	51.5	56.0	55.7	53.4
40 - 44	38.7	41.3	44.1	46.8	50.6	55.1	54.9
45 - 49	33.5	37.4	40.0	42.8	45.6	49.3	53.8
50 - 54	29.9	31.8	35.6	38.2	41.0	43.8	47.5
55 - 59	27.5	27.7	29.5	33.2	35.7	38.5	41.2
60 - 64	25.5	24.5	24.8	26.5	29.9	32.3	34.9
65 - 69	22.5	21.5	20.7	21.1	22.6	25.7	27.9
70 - 74	16.7	17.4	16.8	16.3	16.6	17.9	20.5
75 - 79	9.96	11.4	11.9	11.6	11.3	11.7	12.6
80 - 84	4.66	5.51	6.34	6.71	6.58	6.48	6.72
85 +	1.99	2.45	2.97	3.52	3.89	4.00	4.05
0 - 14	174	171	166	158	147	136	126
20 - 34	149	160	168	169	167	164	161
35 - 44	81.0	86.4	91.9	98.3	107	111	108
45 - 64	116	121	130	141	152	164	177
15 - 64	406	427	446	468	481	491	495
65 +	55.8	58.3	58.7	59.2	61.0	65.8	71.8

## APPENDIX IV--NORTHERN IRELAND

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.77	7.05	5.50	9.17	7.27	5.62	8.40	6.83	5.38
5 - 9	8.57	7.50	5.92	8.93	7.71	6.05	8.22	7.27	5.80
10 - 14	8.93	7.95	6.37	9.31	8.14	6.50	8.57	7.72	6.25
15 - 19	9.00	8.04	6.87	9.31	8.27	7.00	8.70	7.81	6.73
20 - 24	8.39	7.88	7.32	8.47	8.11	7.46	8.31	7.65	7.18
25 - 29	7.88	8.12	7.71	7.78	8.37	7.85	7.96	7.88	7.56
30 - 34	7.36	8.13	7.75	7.23	8.33	7.90	7.48	7.94	7.59
35 - 39	6.80	7.54	7.55	6.65	7.55	7.71	6.94	7.53	7.39
40 - 44	6.28	7.01	7.79	6.08	6.86	7.93	6.48	7.16	7.58
45 - 49	5.47	6.44	7.64	5.27	6.28	7.77	5.61	6.61	7.52
50 - 54	4.86	5.78	6.89	4.70	5.60	6.86	5.08	5.95	6.92
55 - 59	4.43	5.09	6.12	4.32	4.87	5.95	4.54	5.31	6.29
60 - 64	4.05	4.10	5.25	4.01	3.89	5.04	4.09	4.30	5.46
65 - 69	3.51	3.29	4.26	3.54	3.09	4.03	3.49	3.48	4.50
70 - 74	2.71	2.55	3.21	2.63	2.39	2.96	2.80	2.70	3.47
75 - 79	1.77	1.81	2.02	1.57	1.70	1.82	1.97	1.92	2.23
80 - 84	0.96	1.07	1.11	0.73	0.98	0.97	0.98	1.15	1.26
85 +	0.39	0.66	0.74	0.31	0.52	0.58	0.46	0.79	0.89
0 - 14	26.27	22.50	17.80	27.40	23.18	18.16	25.19	21.82	17.43
15 - 34	23.63	24.13	22.78	23.49	24.81	23.22	23.76	23.47	22.34
35 - 44	13.08	14.56	15.30	12.73	14.41	15.64	13.42	14.69	14.96
45 - 64	18.78	21.41	25.90	18.30	20.63	25.61	19.24	22.17	26.20
65 - 84	64.48	68.14	70.85	63.83	68.13	71.47	65.11	68.14	70.23
85 +	9.25	9.37	11.35	8.77	8.69	10.36	9.70	10.04	12.35

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	665	678	688	693	694	692	686
0 - 4	55.9	54.9	51.0	47.3	43.8	40.2	38.8
5 - 9	54.7	54.9	53.8	50.4	48.9	48.1	39.8
10 - 14	57.0	54.1	54.6	53.6	50.2	48.5	48.8
15 - 19	57.9	56.4	53.7	54.1	53.0	49.8	48.2
20 - 24	55.3	57.0	55.6	53.0	53.5	52.6	49.3
25 - 29	53.0	54.2	56.0	54.6	52.2	52.8	51.9
30 - 34	49.8	51.8	53.2	55.0	53.7	51.5	52.1
35 - 39	46.2	48.6	50.7	52.2	54.0	52.9	50.7
40 - 44	43.1	44.8	47.4	49.6	51.1	53.0	52.0
45 - 49	37.3	41.5	43.3	45.8	48.0	49.6	51.6
50 - 54	33.3	35.3	39.4	41.2	43.7	45.9	47.5
55 - 59	30.2	30.9	32.9	36.8	38.6	41.0	43.2
60 - 64	27.2	27.1	27.9	29.8	33.4	35.2	37.5
65 - 69	23.2	23.3	23.3	24.1	25.9	29.2	30.9
70 - 74	18.6	18.4	18.6	18.7	19.4	21.0	23.8
75 - 79	13.1	13.2	13.2	13.3	13.5	14.1	15.3
80 - 84	6.55	7.82	7.91	7.95	8.10	8.22	8.63
85 +	3.09	4.10	5.09	5.49	5.70	5.91	6.11
0 - 14	168	164	159	151	140	130	120
15 - 34	158	163	165	163	159	157	153
35 - 44	89.3	93.4	98.1	102	105	106	103
45 - 64	128	135	144	154	164	172	180
65 - 84	433	448	460	472	481	484	482
85 +	64.5	66.8	68.1	69.5	72.6	78.4	84.7

Notes on page 314.

## APPENDIX IV—SCOTLAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	5,050	5,150	5,210	5,230	5,220	5,170	5,090
0 - 4	409	387	359	328	288	272	27
5 - 9	400	401	383	353	321	295	209
10 - 14	421	377	399	370	342	323	280
15 - 19	439	418	374	335	298	280	221
20 - 24	422	435	414	370	392	377	318
25 - 29	424	416	429	409	386	389	377
30 - 34	400	418	410	424	404	391	384
35 - 39	365	393	410	404	418	410	379
40 - 44	326	357	345	403	397	412	394
45 - 49	313	315	346	375	393	388	403
50 - 54	260	270	302	312	360	372	375
55 - 59	219	251	262	284	312	340	357
60 - 64	220	224	227	239	251	287	312
65 - 69	176	192	193	196	207	225	249
70 - 74	122	136	147	152	155	165	181
75 - 79	73.9	81.2	91.5	99.6	104	107	115
80 - 84	34.3	38.4	42.7	42.7	53.9	56.9	59.3
85 +	13.3	15.9	18.2	20.8	24.3	27.7	30.3
0 - 14	1,230	1,190	1,140	1,060	974	890	810
20 - 34	1,250	1,270	1,250	1,220	1,180	1,150	1,100
35 - 44	691	750	795	807	815	812	773
45 - 54	1,030	1,070	1,140	1,230	1,320	1,390	1,450
15 - 64	3,410	3,510	3,580	3,660	3,700	3,700	3,650
65 +	419	460	492	517	544	582	635

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,440	2,490	2,530	2,550	2,550	2,540	2,500
0 - 4	207	188	182	167	157	139	120
5 - 9	202	203	184	178	164	150	137
10 - 14	212	200	201	192	178	164	149
15 - 19	221	210	199	200	181	177	163
20 - 24	212	219	208	197	198	180	178
25 - 29	210	209	216	206	195	196	188
30 - 34	194	207	206	213	203	193	194
35 - 39	173	191	203	203	216	201	191
40 - 44	150	160	186	199	199	207	178
45 - 49	133	144	163	181	194	194	202
50 - 54	123	126	138	156	173	186	187
55 - 59	115	114	118	129	146	163	175
60 - 64	103	102	102	106	116	133	148
65 - 69	82.1	86.3	85.9	86.0	98.6	98.9	113
70 - 74	54.4	61.4	65.1	65.4	60.0	69.3	77.1
75 - 79	30.7	34.6	39.5	42.3	42.9	43.9	46.6
80 - 84	13.0	14.8	17.0	19.7	21.7	22.4	23.2
85 +	4.38	5.25	6.16	7.26	8.77	10.1	10.8
0 - 14	621	601	577	538	494	453	412
20 - 34	616	635	630	616	596	579	538
35 - 44	323	360	389	402	409	408	389
45 - 64	474	486	521	572	629	676	712
15 - 64	1,630	1,690	1,740	1,790	1,830	1,840	1,820
65 +	185	202	214	221	229	245	271

## APPENDIX IV—SCOTLAND

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.11	6.27	4.85	8.49	6.55	5.03	7.72	6.00	4.68
5 - 9	7.91	6.75	5.29	8.28	7.02	5.47	7.57	6.48	5.11
10 - 14	9.33	7.25	5.78	8.69	7.53	5.95	7.99	7.00	5.61
15 - 19	8.69	7.55	6.31	9.06	7.85	6.51	8.34	7.26	6.11
20 - 24	9.35	7.4	5.84	8.69	7.73	7.03	8.03	7.19	6.65
25 - 29	9.37	7.42	7.31	9.61	8.08	7.51	9.18	7.56	7.12
30 - 34	7.11	9.10	7.54	7.95	8.35	7.75	7.88	7.86	7.35
35 - 39	7.22	7.72	7.55	7.09	7.96	7.63	7.34	7.49	7.27
40 - 44	6.45	7.70	7.74	6.15	7.81	7.91	6.73	7.51	7.58
45 - 49	5.31	7.17	7.92	5.15	7.10	8.06	6.12	7.23	7.78
50 - 54	5.31	6.34	7.37	5.04	6.12	7.47	5.54	6.56	7.27
55 - 59	4.33	5.43	7.01	4.71	5.06	6.99	5.12	5.77	7.04
60 - 64	4.35	4.57	6.13	4.22	4.16	5.91	4.47	4.95	6.34
65 - 69	3.47	3.75	4.89	3.37	3.37	4.51	3.57	4.10	5.26
70 - 74	2.41	2.90	3.56	2.23	2.57	3.08	2.57	3.22	4.02
75 - 79	1.46	1.90	2.25	1.26	1.66	1.86	1.65	2.13	2.64
80 - 84	0.69	0.93	1.17	0.53	0.77	0.93	0.81	1.08	1.40
85 +	0.6	0.40	0.60	0.18	0.28	0.43	0.34	0.50	0.75
0 - 14	24.33	20.28	15.91	25.46	21.11	16.45	23.29	19.48	15.40
20 - 34	24.65	23.37	21.69	25.25	24.17	22.28	24.09	22.61	21.12
35 - 44	13.67	15.42	15.10	13.24	15.77	15.53	14.07	15.09	14.86
45 - 64	20.38	23.51	26.43	19.43	22.44	28.43	21.26	24.51	28.43
15 - 64	67.38	69.85	71.62	66.98	70.23	72.74	67.76	69.48	70.52
65 +	8.28	9.88	12.47	7.57	8.66	10.81	8.95	11.03	14.08

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,610	2,660	2,680	2,680	2,670	2,640	2,580
0 - 4	202	182	177	181	177	183	181
5 - 9	198	198	188	194	189	195	188
10 - 14	209	197	197	188	194	189	184
15 - 19	214	208	195	195	187	193	188
20 - 24	210	216	206	193	194	185	178
25 - 29	214	207	211	203	191	192	180
30 - 34	206	211	204	211	201	190	190
35 - 39	192	202	207	201	208	199	188
40 - 44	176	188	199	204	198	205	196
45 - 49	160	171	183	194	199	194	201
50 - 54	145	153	164	176	187	192	198
55 - 59	134	137	144	155	166	177	182
60 - 64	117	122	125	133	143	154	164
65 - 69	93.4	102	107	110	117	126	136
70 - 74	67.3	74.7	81.7	86.4	89.4	95.6	104
75 - 79	43.1	46.6	52.0	57.3	61.0	63.5	68.3
80 - 84	21.3	23.6	25.7	29.0	32.2	34.5	36.1
85 +	9.89	10.5	12.0	13.5	15.5	17.6	19.5
0 - 14	609	587	563	523	480	437	398
20 - 34	630	634	623	607	586	567	546
35 - 44	368	390	406	405	406	404	384
45 - 64	556	583	616	658	695	717	735
15 - 64	1,770	1,820	1,840	1,870	1,870	1,860	1,820
65 +	234	257	278	296	315	337	364

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## APPENDIX IV—WEST-CENTRAL EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	163,000	163,000	166,000	166,000	165,000	162,000	151,000
0 - 4	12,400	12,400	10,600	9,800	9,100	8,200	7,500
5 - 9	12,100	12,500	11,500	10,500	9,700	8,000	7,300
10 - 14	13,100	12,300	12,500	11,000	10,000	8,800	8,800
15 - 19	13,700	13,200	12,200	12,400	11,300	10,000	9,500
20 - 24	11,000	13,500	13,100	12,100	12,300	11,200	10,500
25 - 29	11,000	13,100	13,300	12,900	11,000	12,200	11,100
30 - 34	11,100	13,200	9,900	13,100	12,400	11,800	12,100
35 - 39	11,300	13,700	13,000	9,770	12,900	12,600	11,700
40 - 44	11,700	13,000	13,500	12,700	9,620	12,700	12,400
45 - 49	10,000	11,300	12,700	13,100	12,400	9,400	12,500
50 - 54	9,100	9,500	10,900	12,200	12,600	12,000	9,090
55 - 59	8,180	8,530	9,020	10,200	11,500	11,900	11,400
60 - 64	7,320	7,400	7,760	8,230	9,360	10,500	11,000
65 - 69	5,710	5,270	6,400	6,720	7,170	8,180	9,210
70 - 74	2,000	4,470	4,950	5,080	5,380	5,770	6,010
75 - 79	2,450	2,710	1,040	3,390	3,510	3,750	4,040
80 - 84	1,120	1,280	1,440	1,630	1,840	1,920	2,070
85 +	415	487	577	665	772	893	975
0 - 14	39,600	36,500	34,600	31,700	29,300	27,100	24,800
20 - 34	37,600	36,700	36,300	38,100	37,000	35,200	33,500
35 - 44	25,000	26,800	26,400	22,500	22,500	25,300	24,100
45 - 64	34,600	36,900	40,300	43,700	45,900	43,900	43,900
15 - 64	111,000	114,000	115,000	117,000	117,000	115,000	111,000
65 +	11,800	13,200	16,400	17,500	18,700	20,500	22,900

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	75,700	80,900	81,500	81,600	81,200	80,300	78,800
0 - 4	6,510	5,920	5,420	5,020	4,650	4,280	3,880
5 - 9	6,270	6,400	5,820	5,340	4,960	4,600	4,250
10 - 14	6,770	6,230	6,360	5,800	5,320	4,940	4,580
15 - 19	6,930	6,710	6,180	6,310	5,750	5,380	4,920
20 - 24	5,140	6,840	6,620	6,110	6,250	6,700	5,300
25 - 29	6,740	5,110	6,730	6,530	6,030	6,190	5,640
30 - 34	7,040	6,630	5,030	6,640	6,450	5,970	6,120
35 - 39	6,660	6,900	6,510	4,940	6,540	6,360	5,890
40 - 44	5,510	6,490	6,740	6,380	4,850	6,440	6,260
45 - 49	4,520	5,320	6,280	6,550	5,200	4,730	6,290
50 - 54	4,160	4,100	5,080	6,000	6,280	5,960	4,560
55 - 59	3,740	3,860	4,010	4,740	5,640	5,900	5,610
60 - 64	3,410	3,390	3,470	3,610	4,290	5,110	5,360
65 - 69	2,650	2,870	2,860	2,960	3,090	3,680	4,400
70 - 74	1,430	2,030	2,210	2,230	2,310	2,440	2,920
75 - 79	1,070	1,200	1,340	1,480	1,500	1,570	1,670
80 - 84	454	526	603	690	772	796	845
85 +	151	180	215	255	300	346	372
0 - 14	19,600	18,600	17,600	16,200	14,900	13,800	12,700
20 - 34	19,000	18,600	18,400	19,300	18,700	17,900	17,000
35 - 44	12,200	13,400	13,200	11,300	11,400	12,800	12,100
45 - 64	15,900	16,900	18,800	20,900	22,400	21,700	21,800
15 - 64	54,000	55,500	56,600	57,800	58,300	57,700	55,900
65 +	6,160	6,800	7,240	7,610	7,980	8,840	10,200

## APPENDIX IV—WEST-CENTRAL EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.85	5.93	4.75	8.17	6.15	4.92	7.54	5.71	4.58
5 - 9	7.58	6.32	5.23	7.87	6.55	5.39	7.30	6.11	5.07
10 - 14	8.19	6.87	5.65	8.50	7.11	5.81	7.90	6.64	5.49
15 - 19	8.36	7.50	6.08	8.70	7.74	6.24	8.04	7.26	5.92
20 - 24	6.27	7.27	6.49	6.51	7.49	6.65	6.04	7.05	6.33
25 - 29	8.20	7.78	6.99	8.45	8.00	7.15	7.96	7.56	6.81
30 - 34	8.58	7.89	7.61	8.84	8.13	7.77	8.34	7.65	7.45
35 - 39	9.18	8.59	7.34	8.37	6.06	7.47	7.99	5.72	7.20
40 - 44	7.16	7.67	7.83	6.92	7.82	7.94	7.39	7.53	7.71
45 - 49	6.13	7.91	7.86	5.68	8.02	7.98	6.57	7.79	7.73
50 - 54	5.58	7.33	5.72	5.23	7.36	5.78	5.91	7.30	5.66
55 - 59	5.01	6.16	7.14	4.75	5.92	7.12	5.26	6.50	7.17
60 - 64	4.48	4.96	6.90	4.28	4.43	6.80	4.67	5.46	6.99
65 - 69	3.50	4.05	5.80	3.33	3.62	5.59	3.66	4.46	6.00
70 - 74	2.48	3.06	4.16	2.30	2.73	3.71	2.66	3.39	4.61
75 - 79	1.50	2.04	2.54	1.34	1.81	2.12	1.66	2.26	2.96
80 - 84	0.68	0.98	1.30	0.57	0.85	1.07	0.79	1.11	1.53
85 +	0.25	0.40	0.61	0.19	0.31	0.47	0.32	0.49	0.75
0 - 14	23.62	19.13	15.63	24.54	19.81	16.13	22.74	18.46	15.15
20 - 34	23.05	22.93	21.09	23.80	23.63	21.58	22.34	22.26	20.61
35 - 44	15.34	13.56	15.16	15.29	13.87	15.41	15.39	13.25	14.92
45 - 64	21.21	26.35	27.62	19.94	25.63	27.68	22.41	27.06	27.56
15 - 64	67.96	70.34	69.95	67.73	70.86	70.91	68.18	69.83	69.00
65 +	8.42	10.54	14.42	7.73	9.33	12.96	9.09	11.71	15.86

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	83,600	84,500	84,800	84,400	83,500	82,100	80,100
0 - 4	6,300	5,700	5,200	4,820	4,450	4,100	3,890
5 - 9	6,100	6,210	6,640	5,180	4,770	4,420	4,080
10 - 14	6,600	6,070	6,170	5,810	5,120	4,750	4,380
15 - 19	6,720	6,340	6,030	6,130	5,570	5,110	4,740
20 - 24	5,050	6,640	6,460	5,950	6,070	5,830	5,080
25 - 29	6,660	4,970	6,550	6,380	5,890	6,010	5,470
30 - 34	6,970	6,560	4,900	6,460	6,320	5,830	5,960
35 - 39	6,680	6,850	6,450	4,830	6,380	6,240	5,770
40 - 44	6,180	6,550	6,730	6,360	4,770	6,300	6,180
45 - 49	5,490	6,020	6,390	6,580	6,210	4,670	6,190
50 - 54	4,940	5,290	5,790	6,160	6,370	6,020	4,530
55 - 59	4,400	4,670	5,010	5,490	5,850	6,040	5,740
60 - 64	3,910	4,050	4,290	4,610	5,070	5,420	5,600
65 - 69	3,060	3,400	3,530	3,770	4,080	4,500	4,800
70 - 74	2,220	2,440	2,730	2,860	3,070	3,330	3,690
75 - 79	1,390	1,530	1,700	1,910	2,010	2,180	2,370
80 - 84	663	749	835	935	1,060	1,130	1,230
85 +	264	307	362	410	471	547	602
0 - 14	19,000	18,000	17,000	15,600	14,400	13,300	12,100
20 - 34	18,700	18,200	17,900	18,800	18,300	17,400	16,500
35 - 44	12,900	13,400	13,200	11,200	11,100	12,500	11,900
45 - 64	18,700	20,000	21,500	22,800	23,500	22,200	22,100
15 - 64	57,000	58,100	58,600	59,000	58,500	57,200	55,200
65 +	7,600	8,430	9,160	9,880	10,700	11,700	12,700

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## APPENDIX IV— AUSTRIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	6 660	6,720	6,720	6,680	6,580	6,450	6,280
0 - 4	437	488	488	388	399	331	304
5 - 9	458	430	478	481	391	355	327
10 - 14	522	454	426	475	428	384	354
15 - 19	559	517	450	423	422	428	387
20 - 24	390	551	512	445	419	418	423
25 - 29	545	384	544	506	440	415	463
30 - 34	572	536	379	537	499	436	411
35 - 39	555	561	526	372	529	493	430
40 - 44	498	551	549	516	366	521	486
45 - 49	430	481	534	534	502	357	510
50 - 54	404	410	459	511	512	483	344
55 - 59	164	377	384	431	480	483	456
60 - 64	323	328	340	348	392	438	441
65 - 69	249	275	280	293	300	340	380
70 - 74	174	192	215	220	232	239	273
75 - 79	105	115	129	145	151	160	166
80 - 84	47.6	53.3	59.7	67.6	77.6	81.5	87.3
85 +	18.1	20.3	23.1	26.6	31.0	36.5	39.9
0 - 14	1,420	1,370	1,340	1,300	1,180	1,080	995
20 - 34	1,510	1,470	1,440	1,490	1,360	1,320	1,300
35 - 44	1,060	1,110	1,080	888	895	1,010	916
45 - 64	1,520	1,600	1,720	1,820	1,890	1,760	1,750
15 - 64	4,650	4,700	4,690	4,620	4,610	4,520	4,350
65 +	594	656	706	752	791	857	946

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,230	3,270	3,280	3,270	3,230	3,180	3,110
0 - 4	222	242	222	202	183	169	155
5 - 9	232	218	243	219	189	181	167
10 - 14	265	230	216	241	218	198	180
15 - 19	283	262	228	214	240	217	197
20 - 24	209	279	259	225	212	222	215
25 - 29	276	206	275	256	222	210	225
30 - 34	286	271	203	271	252	220	208
35 - 39	280	280	266	199	267	249	217
40 - 44	232	272	273	260	195	262	245
45 - 49	193	223	262	264	252	190	256
50 - 54	181	182	211	249	252	241	182
55 - 59	165	167	169	196	232	236	226
60 - 64	146	146	148	151	176	209	213
65 - 69	113	122	122	125	127	150	178
70 - 74	78.3	85.2	92.6	93.8	97.0	99.4	118
75 - 79	45.8	50.4	55.4	61.0	62.9	65.3	67.6
80 - 84	19.8	22.3	25.0	28.0	31.6	33.1	34.8
85 +	6.78	7.77	8.93	10.2	11.8	13.6	14.6
0 - 14	719	695	681	662	600	548	502
20 - 34	771	756	737	752	686	667	658
35 - 44	512	552	539	459	462	511	462
45 - 64	685	718	790	860	912	876	877
15 - 64	2,250	2,290	2,290	2,290	2,300	2,270	2,190
65 +	264	288	304	318	330	361	413

## APPENDIX IV—MUSLIMS

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	6.56	5.93	4.84	6.87	6.19	4.99	6.27	5.69	4.70
5 - 9	6.88	6.45	5.21	7.17	6.71	5.37	6.59	6.21	5.04
10 - 14	7.84	7.11	5.64	8.19	7.38	5.79	7.50	6.86	5.48
15 - 19	8.39	6.34	6.16	8.75	6.55	6.34	8.05	6.15	5.99
20 - 24	5.86	6.66	6.73	6.46	6.89	6.92	5.28	6.45	6.56
25 - 29	8.18	7.58	7.37	8.54	7.84	7.56	7.85	7.13	7.19
30 - 34	8.59	8.04	6.54	8.84	8.30	6.69	8.15	7.80	6.40
35 - 39	8.48	5.57	6.84	8.66	6.09	6.98	8.32	5.07	6.71
40 - 44	7.48	7.73	7.74	7.17	7.96	7.88	7.76	7.50	7.60
45 - 49	6.46	8.00	8.12	5.97	8.09	8.23	6.92	7.91	8.00
50 - 54	6.07	7.65	5.48	5.60	7.63	5.85	6.51	7.68	5.11
55 - 59	5.46	6.45	7.26	5.10	6.00	7.27	5.81	6.89	7.25
60 - 64	4.85	5.21	7.02	4.51	4.62	6.85	5.16	5.77	7.19
65 - 69	3.74	4.39	6.05	3.49	3.83	5.73	3.97	4.92	6.37
70 - 74	2.62	3.29	4.35	2.42	2.87	3.80	2.80	3.69	4.80
75 - 79	1.57	2.17	2.64	1.42	1.87	2.17	1.72	2.46	3.10
80 - 84	0.71	1.01	1.39	0.61	0.86	1.12	0.81	1.16	1.65
85 +	0.27	0.40	0.64	0.21	0.31	0.47	0.33	0.48	0.80
0 - 14	21.27	19.50	15.68	22.23	20.28	16.15	20.37	18.76	15.22
20 - 34	22.63	22.29	20.65	23.84	23.03	21.16	21.48	21.57	20.14
35 - 44	15.96	13.30	14.58	15.83	14.06	14.86	16.08	12.57	14.31
45 - 64	22.84	27.32	27.87	21.18	26.34	28.21	24.19	28.25	27.54
65 - 84	69.81	69.24	69.26	69.61	60.98	70.57	70.00	68.52	67.98
85 +	8.91	11.26	15.06	8.15	9.74	13.28	9.63	12.72	16.80

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,430	3,450	3,440	3,410	3,350	3,270	3,170
0 - 4	215	239	214	194	176	162	143
5 - 9	226	212	235	212	192	174	160
10 - 14	257	224	210	234	210	191	174
15 - 19	276	255	222	209	232	209	190
20 - 24	181	272	253	220	207	231	208
25 - 29	269	178	269	250	218	205	228
30 - 34	286	265	176	266	247	216	203
35 - 39	285	281	260	173	262	244	213
40 - 44	266	279	276	256	171	259	241
45 - 49	237	258	272	270	250	167	254
50 - 54	223	228	248	262	260	242	162
55 - 59	199	210	215	235	248	247	230
60 - 64	177	182	192	197	216	229	228
65 - 69	136	153	158	168	173	190	202
70 - 74	95.9	107	122	126	135	140	155
75 - 79	59.0	65.0	73.3	84.0	87.6	94.2	98.3
80 - 84	27.8	31.0	34.7	39.6	46.0	48.4	52.5
85 +	11.3	12.5	14.2	16.4	19.2	22.9	25.3
0 - 14	698	675	659	640	578	527	483
20 - 34	736	715	698	736	672	652	639
35 - 44	551	560	536	429	433	503	454
45 - 64	836	878	927	964	974	885	874
65 - 84	2,400	2,410	2,380	2,340	2,310	2,250	2,160
85 +	330	369	402	434	461	496	533

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## APPENDIX IV—BELGIUM

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	8,310	8,350	8,340	8,270	8,160	7,980	7,760
0 - 4	588	549	507	473	438	385	353
5 - 9	625	578	541	501	467	431	388
10 - 14	655	621	574	538	488	465	430
15 - 19	642	649	615	570	535	488	463
20 - 24	518	633	641	609	565	530	488
25 - 29	641	510	625	633	602	559	525
30 - 34	684	631	503	617	626	596	554
35 - 39	686	672	621	495	608	618	590
40 - 44	627	670	659	609	487	599	611
45 - 49	547	609	652	642	596	476	587
50 - 54	494	523	584	627	619	574	461
55 - 59	458	463	492	551	592	585	545
60 - 64	395	414	422	449	503	543	538
65 - 69	315	339	358	366	391	440	475
70 - 74	221	247	268	284	293	315	356
75 - 79	133	149	172	185	197	204	221
80 - 84	60.3	68.9	77.5	92.0	101	108	113
85 +	20.9	24.8	29.2	33.9	40.8	46.0	50.7
0 - 14	1,870	1,750	1,620	1,510	1,400	1,290	1,180
20 - 34	1,840	1,770	1,770	1,860	1,790	1,090	1,570
35 - 44	1,310	1,340	1,280	1,100	1,100	1,220	1,200
45 - 64	1,890	2,010	2,150	2,270	2,310	2,180	2,130
15 - 64	5,690	5,770	5,810	5,800	5,730	5,580	5,370
65 +	750	829	905	961	1,020	1,110	1,220

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,120	4,140	4,130	4,100	4,050	3,960	3,850
0 - 4	298	278	257	240	222	201	180
5 - 9	315	292	274	254	237	218	189
10 - 14	329	313	290	272	253	236	218
15 - 19	324	326	310	288	271	251	235
20 - 24	261	319	322	307	285	268	249
25 - 29	322	257	315	318	303	282	265
30 - 34	347	317	253	311	314	300	280
35 - 39	347	340	312	249	306	310	297
40 - 44	311	338	333	305	244	301	306
45 - 49	265	301	328	324	298	238	294
50 - 54	240	252	287	314	311	286	230
55 - 59	223	223	235	269	295	292	270
60 - 64	190	199	201	212	243	268	266
65 - 69	149	160	169	171	181	209	231
70 - 74	102	114	124	131	134	143	166
75 - 79	58.8	66.8	78.9	83.8	88.8	91.3	98.3
80 - 84	25.4	29.5	32.8	41.0	44.5	47.6	49.4
85 +	8.18	9.97	11.9	13.7	17.2	19.3	21.0
0 - 14	942	883	821	766	712	656	597
20 - 34	930	893	890	936	902	850	794
35 - 44	658	678	645	554	550	611	603
45 - 64	918	975	1,050	1,120	1,150	1,080	1,060
15 - 64	2,830	2,870	2,900	2,900	2,870	2,800	2,690
65 +	343	380	417	441	466	510	566

## APPENDIX IV—BELGIUM

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.08	5.72	4.55	7.24	5.85	4.67	6.91	5.59	4.41
5 - 9	7.52	6.05	5.05	7.65	6.19	5.16	7.39	5.92	4.95
10 - 14	7.88	6.50	5.54	7.99	6.63	5.66	7.77	6.38	5.43
15 - 19	7.73	6.89	5.97	7.87	7.02	6.10	7.58	6.76	5.84
20 - 24	6.23	7.36	6.34	6.34	7.48	6.46	6.13	7.24	6.21
25 - 29	7.71	7.65	6.77	7.82	7.75	6.87	7.61	7.55	6.66
30 - 34	8.23	7.46	7.14	8.41	7.59	7.26	8.03	7.34	7.02
35 - 39	8.26	5.98	7.61	8.41	6.07	7.70	8.08	5.90	7.51
40 - 44	7.55	7.36	7.88	7.56	7.43	7.94	7.53	7.29	7.82
45 - 49	6.58	7.76	7.57	6.44	7.90	7.63	6.72	7.62	7.51
50 - 54	5.94	7.54	5.94	5.93	7.65	5.97	6.06	7.50	5.92
55 - 59	5.51	6.66	7.03	5.42	6.56	7.00	5.60	6.76	7.05
60 - 64	4.75	5.43	6.94	4.62	5.17	6.90	4.89	5.68	6.97
65 - 69	3.79	4.42	6.12	3.62	4.17	5.99	3.96	4.67	6.25
70 - 74	2.66	3.43	4.59	2.48	3.19	4.31	2.84	3.67	4.87
75 - 79	1.60	2.23	2.85	1.43	2.04	2.55	1.76	2.42	3.15
80 - 84	0.73	1.11	1.46	0.62	1.00	1.28	0.83	1.22	1.63
85 +	0.25	0.41	0.65	0.20	0.33	0.54	0.30	0.48	0.76
0 - 14	22.48	18.27	15.15	22.89	18.67	15.49	22.08	17.88	14.81
20 - 34	22.18	22.47	20.25	22.60	22.81	20.60	21.77	22.13	19.91
35 - 44	15.80	13.34	15.48	15.99	13.50	15.64	15.62	13.19	15.32
45 - 64	22.79	27.42	27.47	22.31	27.27	27.50	23.27	27.57	27.44
15 - 64	68.50	70.12	69.17	68.77	70.60	69.84	68.23	69.64	68.52
65 +	9.02	11.61	15.68	8.34	10.73	14.68	9.69	12.47	16.67

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,190	4,220	4,210	4,170	4,110	4,020	3,900
0 - 4	290	271	250	233	214	194	173
5 - 9	310	286	267	247	230	212	188
10 - 14	326	308	284	266	246	220	212
15 - 19	318	323	305	282	264	245	228
20 - 24	257	314	319	302	280	262	248
25 - 29	319	253	310	315	299	277	260
30 - 34	337	314	250	306	312	290	274
35 - 39	339	332	309	246	302	311	293
40 - 44	316	332	326	304	243	312	305
45 - 49	282	308	324	318	298	19	293
50 - 54	254	271	297	313	308	298	231
55 - 59	235	240	257	282	297	293	275
60 - 64	205	215	221	237	260	275	272
65 - 69	166	179	189	195	210	231	244
70 - 74	119	133	144	153	159	172	190
75 - 79	73.9	82.6	92.9	101	108	113	123
80 - 84	34.9	39.4	44.7	51.0	56.2	60.6	63.4
85 +	12.7	14.8	17.3	20.2	23.6	26.7	29.7
0 - 14	926	865	801	746	690	615	574
20 - 34	913	881	879	923	891	815	777
35 - 44	655	664	635	550	545	606	599
45 - 64	976	1,030	1,100	1,150	1,160	1,090	1,070
15 - 64	2,860	2,900	2,920	2,910	2,860	2,780	2,670
65 +	407	449	488	520	557	603	651

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## APPENDIX IV—CZECHOSLOVAKIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	15,300	15,500	15,600	15,600	15,500	15,200	14,900
0 - 4	1,130	1,020	980	904	825	738	650
5 - 9	1,290	1,100	1,000	848	801	814	727
10 - 14	1,380	1,250	1,090	883	843	888	810
15 - 19	1,380	1,370	1,240	1,080	888	837	881
20 - 24	1,000	1,360	1,350	1,220	1,070	978	928
25 - 29	1,340	984	1,340	1,330	1,210	1,060	966
30 - 34	1,390	1,320	969	1,320	1,310	1,190	1,050
35 - 39	1,270	1,370	1,300	953	1,300	1,300	1,180
40 - 44	1,100	1,240	1,340	1,270	936	1,280	1,280
45 - 49	899	1,070	1,200	1,300	1,240	913	1,250
50 - 54	772	858	1,020	1,150	1,250	1,190	880
55 - 59	680	721	802	956	1,080	1,180	1,130
60 - 64	584	613	652	729	871	990	1,080
65 - 69	475	499	524	561	630	756	862
70 - 74	339	368	388	412	443	502	606
75 - 79	201	226	247	264	283	307	348
80 - 84	96.1	104	119	132	143	155	169
85 +	36.3	43.4	55.1	57.6	66.0	73.8	81.9
0 - 14	3,770	3,370	3,060	2,850	2,660	2,440	2,190
20 - 34	3,740	3,660	3,660	3,870	3,590	3,230	2,940
35 - 44	2,370	2,610	2,630	2,220	2,240	2,580	2,460
45 - 64	2,940	3,260	3,680	4,140	4,440	4,270	4,330
15 - 64	10,400	10,900	11,200	11,300	11,300	11,000	10,600
65 +	1,150	1,240	1,330	1,430	1,570	1,790	2,070

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,480	7,580	7,640	7,660	7,630	7,530	7,370
0 - 4	574	520	482	401	421	370	322
5 - 9	638	559	508	483	454	415	371
10 - 14	698	632	555	505	480	451	413
15 - 19	696	691	627	550	501	477	449
20 - 24	505	685	681	618	544	488	470
25 - 29	672	496	674	671	610	537	481
30 - 34	697	659	488	665	662	603	532
35 - 39	623	683	647	480	655	653	596
40 - 44	522	606	666	633	470	643	642
45 - 49	412	503	586	645	615	457	627
50 - 54	351	391	478	558	617	589	439
55 - 59	310	325	362	445	522	578	554
60 - 64	267	276	290	325	401	472	524
65 - 69	217	224	232	246	277	343	405
70 - 74	153	165	171	179	191	217	271
75 - 79	88.8	99.6	108	114	121.0	130	148
80 - 84	40.0	44.0	50.5	56.0	59.9	64.3	69.9
85 +	13.7	16.4	18.7	22.2	25.5	28.2	31.1
0 - 14	1,910	1,710	1,560	1,450	1,360	1,240	1,120
20 - 34	1,870	1,840	1,840	1,950	1,820	1,640	1,500
35 - 44	1,150	1,290	1,310	1,110	1,130	1,300	1,240
45 - 64	1,340	1,500	1,720	1,970	2,160	2,100	2,140
15 - 64	5,060	5,320	5,500	5,590	5,600	5,510	5,330
65 +	513	549	580	617	674	783	925

## APPENDIX IV—CZECHOSLOVAKIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.36	5.80	4.37	7.68	6.02	4.51	7.05	5.59	4.24
5 - 9	8.21	6.09	4.89	8.53	6.31	5.04	7.91	5.88	4.75
10 - 14	9.01	6.37	5.45	9.33	6.60	5.61	8.71	6.15	5.29
15 - 19	8.98	6.95	5.93	9.31	7.18	6.09	8.67	6.72	5.76
20 - 24	6.53	7.84	6.24	6.75	8.07	6.41	6.32	7.62	6.08
25 - 29	8.76	8.54	6.50	8.99	8.76	6.66	8.54	8.32	6.33
30 - 34	9.08	8.46	7.05	9.32	8.69	7.22	8.86	8.23	6.88
35 - 39	8.28	6.11	7.93	8.33	6.27	8.09	8.22	5.96	7.77
40 - 44	7.17	8.15	8.59	6.98	8.27	9.71	7.36	8.05	8.47
45 - 49	5.86	8.33	8.41	5.51	8.42	8.51	6.19	8.25	8.31
50 - 54	5.03	7.38	5.92	4.69	7.29	5.96	5.35	7.48	5.88
55 - 59	4.43	6.13	7.57	4.15	5.81	7.52	4.70	6.44	7.63
60 - 64	3.82	4.68	7.24	3.57	4.24	7.11	4.05	5.09	7.37
65 - 69	3.10	3.60	5.80	2.90	3.21	5.50	3.28	3.97	6.09
70 - 74	2.21	2.64	4.08	2.05	2.34	3.68	2.36	2.94	4.47
75 - 79	1.31	1.69	2.34	1.19	1.49	2.01	1.42	1.89	2.67
80 - 84	0.63	0.85	1.14	0.53	0.73	0.95	0.71	0.96	1.33
85 +	0.24	0.37	0.55	0.18	0.29	0.42	0.29	0.45	0.68
0 - 14	24.58	18.26	14.71	25.54	18.93	15.15	23.67	17.62	14.28
20 - 34	24.37	24.84	19.79	25.06	25.52	20.29	23.72	24.17	19.30
35 - 44	15.45	14.27	16.52	15.31	14.54	16.80	15.58	14.01	16.24
45 - 64	19.14	26.53	29.15	17.92	25.77	29.10	20.30	27.26	29.19
15 - 64	67.94	72.58	71.38	67.60	73.01	72.30	68.27	72.17	70.49
65 +	7.48	9.16	13.91	6.85	8.06	12.56	8.07	10.21	15.23

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,870	7,930	7,960	7,930	7,850	7,710	7,500
0 - 4	555	501	473	448	404	380	318
5 - 9	622	542	491	468	437	399	350
10 - 14	685	616	538	488	463	435	397
15 - 19	682	678	611	533	485	480	438
20 - 24	497	672	669	604	528	480	466
25 - 29	672	488	662	660	596	522	475
30 - 34	697	661	481	653	652	589	516
35 - 39	647	684	650	473	644	644	583
40 - 44	579	633	670	638	466	635	635
45 - 49	487	563	616	654	624	456	623
50 - 54	421	467	541	593	631	603	441
55 - 59	370	396	440	511	562	598	572
60 - 64	319	337	362	404	470	518	553
65 - 69	258	275	292	315	353	413	457
70 - 74	186	203	217	233	252	285	255
75 - 79	112	126	139	150	162	177	200
80 - 84	56.1	60.3	68.8	76.3	83.3	90.5	99.5
85 +	22.6	27.0	36.4	35.4	40.5	45.6	50.8
0 - 14	1,860	1,660	1,500	1,400	1,300	1,190	1,070
20 - 34	1,870	1,820	1,810	1,920	1,780	1,590	1,450
35 - 44	1,230	1,320	1,320	1,110	1,110	1,280	1,220
45 - 64	1,600	1,760	1,960	2,160	2,290	2,180	2,190
15 - 64	5,370	5,580	5,700	5,720	5,660	5,510	5,290
65 +	635	691	753	810	891	1,010	1,140

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## APPENDIX IV—FRANCE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	41,200	40,800	40,300	39,700	39,000	38,100	36,900
0 - 4	2,810	2,520	2,420	2,320	2,180	1,850	1,700
5 - 9	3,180	2,770	2,490	2,390	2,300	2,140	1,830
10 - 14	3,500	3,160	2,750	2,480	2,380	2,300	2,130
15 - 19	3,230	3,460	3,130	2,730	2,460	2,300	2,280
20 - 24	2,410	3,180	3,400	3,080	2,690	2,430	2,340
25 - 29	3,000	2,350	3,110	3,330	3,030	2,650	2,380
30 - 34	3,270	2,940	2,310	3,050	3,290	2,990	2,620
35 - 39	3,290	3,190	2,870	2,260	3,000	3,240	2,940
40 - 44	3,000	3,190	3,100	2,810	2,210	2,950	3,180
45 - 49	2,580	2,880	3,080	3,000	2,720	2,150	2,870
50 - 54	2,430	2,440	2,740	2,930	2,870	2,600	2,060
55 - 59	2,260	2,250	2,290	2,560	2,750	2,690	2,450
60 - 64	2,050	2,040	2,040	2,070	2,330	2,510	2,450
65 - 69	1,680	1,740	1,740	1,750	1,800	2,020	2,170
70 - 74	1,240	1,310	1,360	1,370	1,390	1,430	1,620
75 - 79	789	824	880	927	943	965	1,000
80 - 84	373	407	430	465	497	513	532
85 +	143	160	178	196	216	237	253
0 - 14	9,490	8,450	7,660	7,190	6,840	6,390	5,750
20 - 34	8,680	8,470	8,820	9,460	9,010	8,070	7,350
35 - 44	6,290	6,380	5,970	5,070	5,210	6,190	6,120
45 - 64	9,320	9,610	10,100	10,600	10,700	9,950	9,830
15 - 64	27,500	27,900	28,100	27,800	27,300	26,600	25,600
65 +	4,220	4,440	4,590	4,710	4,850	5,170	5,580

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1960	1965	1970	
Total	19,900	19,700	19,500	19,200	18,900	18,600	18,000
0 - 4	1,410	1,270	1,220	1,170	1,090	887	877
5 - 9	1,600	1,390	1,250	1,200	1,160	1,080	978
10 - 14	1,770	1,590	1,380	1,250	1,200	1,160	1,080
15 - 19	1,640	1,750	1,570	1,370	1,330	1,180	1,150
20 - 24	1,220	1,610	1,720	1,550	1,350	1,220	1,180
25 - 29	1,510	1,190	1,570	1,680	1,520	1,330	1,200
30 - 34	1,660	1,480	1,170	1,540	1,660	1,500	1,310
35 - 39	1,670	1,610	1,440	1,140	1,510	1,630	1,470
40 - 44	1,450	1,610	1,560	1,400	1,110	1,480	1,590
45 - 49	1,150	1,380	1,540	1,500	1,350	1,070	1,430
50 - 54	1,090	1,070	1,300	1,450	1,420	1,280	1,020
55 - 59	1,010	991	986	1,200	1,350	1,320	1,190
60 - 64	929	889	876	876	1,070	1,210	1,180
65 - 69	757	766	738	732	737	902	1,020
70 - 74	532	564	576	559	559	568	701
75 - 79	323	336	361	372	366	370	380
80 - 84	140	153	162	177	186	187	194
85 +	45.9	51.4	57.5	62.6	69.6	75.6	79.0
0 - 14	4,780	4,250	3,850	3,620	3,450	3,230	2,940
20 - 34	4,390	4,280	4,460	4,770	4,530	4,050	3,690
35 - 44	3,120	3,220	3,000	2,540	2,620	3,110	3,060
45 - 64	4,180	4,330	4,700	5,030	5,190	4,880	4,820
15 - 64	13,300	13,600	13,700	13,700	13,600	13,200	12,700
65 +	1,800	1,870	1,890	1,900	1,920	2,100	2,370

## APPENDIX IV—FRANCE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	6.81	5.84	4.60	7.08	6.08	4.86	6.56	5.61	4.35
5 - 9	7.71	6.02	5.22	8.04	6.24	5.42	7.41	5.81	5.02
10 - 14	8.49	6.24	5.77	8.89	6.50	5.99	8.11	6.00	5.56
15 - 19	7.83	6.87	6.18	8.24	7.12	6.38	7.46	6.64	5.99
20 - 24	5.84	7.75	6.34	6.13	8.06	6.55	5.58	7.47	6.14
25 - 29	7.28	8.38	6.48	7.59	8.74	6.66	6.99	8.05	6.30
30 - 34	7.93	7.68	7.10	8.34	8.01	7.27	7.55	7.37	6.94
35 - 39	7.98	5.69	7.97	8.39	5.93	8.15	7.60	5.47	7.79
40 - 44	7.28	7.07	8.62	7.28	7.28	8.82	7.27	6.88	8.42
45 - 49	6.26	7.55	7.78	5.78	7.80	7.93	6.71	7.32	7.63
50 - 54	5.89	7.38	5.58	5.48	7.54	5.66	6.28	7.22	5.51
55 - 59	5.48	6.45	6.64	5.07	6.24	6.60	5.86	6.64	6.67
60 - 64	4.97	5.20	6.64	4.67	4.56	6.55	5.25	5.81	6.73
65 - 69	4.08	4.41	5.88	3.80	3.81	5.66	4.35	4.98	6.09
70 - 74	3.00	3.46	4.39	2.67	2.91	3.89	3.30	3.98	4.87
75 - 79	1.91	2.33	2.71	1.62	1.93	2.11	2.19	2.71	3.29
80 - 84	0.90	1.17	1.44	0.70	0.92	1.08	1.09	1.41	1.79
85 +	0.35	0.49	0.69	0.23	0.33	0.44	0.45	0.65	0.92
0 - 14	23.02	18.10	15.59	24.01	18.83	16.28	22.09	17.42	14.93
20 - 34	21.05	23.82	19.91	22.05	24.81	20.47	20.12	22.89	19.39
35 - 44	15.25	12.76	16.58	15.67	13.21	16.97	14.86	12.35	16.21
45 - 64	22.60	26.58	26.63	20.99	26.14	26.73	24.10	26.99	26.54
15 - 64	66.74	70.03	69.31	66.96	71.28	70.55	66.54	68.86	68.11
65 +	10.24	11.87	15.11	9.03	9.89	13.17	11.37	13.72	16.96

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	21,300	21,100	20,800	20,500	20,100	19,600	18,900
0 - 4	1,400	1,250	1,200	1,150	1,070	983	821
5 - 9	1,580	1,380	1,200	1,100	1,140	1,060	809
10 - 14	1,730	1,570	1,370	1,230	1,180	1,140	1,050
15 - 19	1,590	1,710	1,560	1,360	1,220	1,170	1,130
20 - 24	1,190	1,570	1,680	1,530	1,340	1,210	1,160
25 - 29	1,490	1,160	1,540	1,650	1,510	1,320	1,180
30 - 34	1,610	1,460	1,140	1,510	1,630	1,490	1,310
35 - 39	1,620	1,580	1,430	1,120	1,490	1,610	1,470
40 - 44	1,550	1,580	1,540	1,410	1,100	1,470	1,590
45 - 49	1,430	1,500	1,540	1,500	1,370	1,080	1,440
50 - 54	1,340	1,370	1,440	1,480	1,450	1,320	1,040
55 - 59	1,250	1,260	1,300	1,360	1,400	1,370	1,260
60 - 64	1,120	1,150	1,160	1,190	1,260	1,300	1,270
65 - 69	927	978	1,000	1,020	1,060	1,120	1,150
70 - 74	703	743	788	815	835	866	919
75 - 79	466	488	519	555	577	595	621
80 - 84	233	254	268	288	311	326	338
85 +	96.8	109	121	133	146	161	174
0 - 14	4,710	4,200	3,810	3,570	3,390	3,160	2,820
20 - 34	4,290	4,190	4,360	4,690	4,480	4,020	3,660
35 - 44	3,170	3,160	2,970	2,530	2,590	3,080	3,060
45 - 64	5,140	5,280	5,440	5,530	5,480	5,070	5,010
15 - 64	14,200	14,300	14,300	14,100	13,800	13,300	12,900
65 +	2,430	2,570	2,700	2,810	2,930	3,070	3,200

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## APPENDIX IV— GERMANY

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	69,500	71,200	72,000	72,200	71,800	71,100	69,800
0 - 4	5,910	5,280	4,880	4,230	3,010	3,880	3,380
5 - 9	4,910	5,840	5,230	4,680	4,180	3,880	3,880
10 - 14	5,320	4,890	5,800	5,210	4,610	4,180	3,880
15 - 19	5,870	5,280	4,860	5,770	6,180	4,800	4,180
20 - 24	4,210	5,810	5,230	4,820	5,730	5,190	4,580
25 - 29	5,980	4,170	5,750	5,190	4,780	5,690	5,100
30 - 34	6,260	5,910	4,110	5,680	5,140	4,740	5,640
35 - 39	5,870	6,160	5,830	4,060	5,620	5,080	4,690
40 - 44	4,970	5,760	6,060	5,740	4,010	5,550	5,010
45 - 49	4,280	4,850	5,610	5,930	5,610	3,930	5,460
50 - 54	3,880	4,130	4,680	5,420	5,740	5,440	3,820
55 - 59	3,420	3,660	3,900	4,420	5,140	5,440	5,170
60 - 64	3,120	3,130	3,350	3,580	4,060	4,730	5,010
65 - 69	2,340	2,690	2,710	2,920	3,130	3,570	4,160
70 - 74	1,620	1,850	2,140	2,170	2,350	2,540	2,910
75 - 79	947	1,100	1,270	1,480	1,510	1,650	1,790
80 - 84	418	501	593	690	812	835	921
85 +	152	186	231	281	336	404	438
0 - 14	16,100	16,000	15,700	14,100	12,700	11,700	10,900
20 - 34	16,500	15,900	15,100	15,700	15,700	15,600	15,300
35 - 44	10,800	11,900	11,900	9,800	9,630	10,600	9,720
45 - 64	14,700	15,800	17,500	19,400	20,600	19,500	19,500
15 - 64	47,900	48,900	49,400	50,600	51,000	50,300	48,600
65 +	5,480	6,330	6,940	7,540	8,140	9,000	10,200

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	34,000	35,000	35,500	35,700	35,600	35,300	34,800
0 - 4	3,020	2,710	2,400	2,170	2,010	1,880	1,740
5 - 9	2,500	2,980	2,670	2,370	2,140	1,880	1,880
10 - 14	2,700	2,490	2,960	2,680	2,380	2,190	1,980
15 - 19	2,990	2,680	2,470	2,940	2,640	2,380	2,130
20 - 24	2,130	2,960	2,650	2,450	2,920	2,620	2,330
25 - 29	3,020	2,110	2,930	2,630	2,430	2,900	2,600
30 - 34	3,150	2,980	2,080	2,890	2,600	2,410	2,870
35 - 39	2,930	3,100	2,940	2,050	2,860	2,570	2,380
40 - 44	2,280	2,870	3,040	2,890	2,020	2,820	2,540
45 - 49	1,900	2,220	2,790	2,970	2,820	1,980	2,770
50 - 54	1,770	1,830	2,140	2,690	2,870	2,730	1,920
55 - 59	1,600	1,660	1,720	2,010	2,540	2,710	2,580
60 - 64	1,480	1,450	1,510	1,560	1,830	2,320	2,480
65 - 69	1,110	1,260	1,240	1,300	1,350	1,590	2,000
70 - 74	753	866	990	981	1,030	1,080	1,280
75 - 79	422	502	585	675	673	713	748
80 - 84	176	216	264	311	362	364	390
85 +	57.8	73.2	93.7	118	143	171	182
0 - 14	8,220	8,180	8,030	7,200	6,510	6,010	5,600
20 - 34	8,300	8,050	7,660	7,970	7,950	7,730	7,800
35 - 44	5,210	5,970	5,980	4,940	4,880	5,390	4,920
45 - 64	6,750	7,160	8,160	9,230	10,100	9,740	9,750
15 - 64	23,300	23,900	24,300	25,100	25,500	25,400	24,600
65 +	2,520	2,920	3,170	3,390	3,560	3,920	4,620

## APPENDIX IV— GERMANY

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.51	5.86	4.85	8.89	6.08	5.00	8.14	5.64	4.69
5 - 9	7.07	6.41	5.25	7.36	6.65	5.40	6.79	6.18	5.09
10 - 14	7.66	7.21	5.53	7.94	7.46	5.69	7.38	6.98	5.38
15 - 19	8.45	7.99	5.96	8.80	8.24	6.12	8.11	7.74	5.81
20 - 24	6.06	6.67	6.54	6.27	6.87	6.69	5.86	6.48	6.38
25 - 29	8.61	7.19	7.31	8.89	7.37	7.47	8.34	7.00	7.16
30 - 34	9.01	7.86	8.09	9.27	8.10	8.24	8.76	7.63	7.93
35 - 39	8.45	5.62	6.72	8.62	5.75	6.84	8.28	5.50	6.61
40 - 44	7.15	7.95	7.21	6.71	8.10	7.29	7.58	7.80	7.13
45 - 49	6.16	8.21	7.83	5.59	8.33	7.96	6.71	8.10	7.70
50 - 54	5.58	7.50	5.48	5.21	7.54	5.51	5.95	7.47	5.44
55 - 59	4.92	6.12	7.41	4.71	5.64	7.41	5.13	6.59	7.41
60 - 64	4.49	4.96	7.18	4.35	4.37	7.12	4.62	5.53	7.24
65 - 69	3.37	4.04	5.96	3.27	3.65	5.80	3.47	4.43	6.13
70 - 74	2.33	3.01	4.17	2.22	2.75	3.68	2.45	3.26	4.67
75 - 79	1.36	2.05	2.56	1.24	1.89	2.15	1.48	2.20	2.98
80 - 84	0.60	0.96	1.32	0.52	0.87	1.12	0.68	1.04	1.52
85 +	0.22	0.39	0.63	0.17	0.33	0.52	0.27	0.45	0.73
0 - 14	23.21	19.48	15.63	24.18	20.19	16.08	22.32	18.79	15.17
20 - 34	23.68	21.72	21.93	24.42	22.35	22.40	22.96	21.12	21.47
35 - 44	15.60	13.57	13.93	15.33	13.85	14.13	15.86	13.29	13.74
45 - 64	21.16	26.79	27.90	19.86	25.88	28.00	22.40	27.68	27.79
15 - 64	68.88	70.08	69.73	68.40	70.32	70.65	69.34	69.84	68.81
65 +	7.89	10.44	14.65	7.41	9.49	13.27	8.34	11.37	16.02

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	35,500	36,300	36,600	36,600	36,300	35,700	34,900
0 - 4	2,890	2,520	2,280	2,080	1,900	1,780	1,840
5 - 9	2,410	2,860	2,560	2,260	2,040	1,880	1,780
10 - 14	2,620	2,400	2,840	2,550	2,250	2,030	1,880
15 - 19	2,880	2,600	2,390	2,830	2,540	2,250	2,030
20 - 24	2,080	2,850	2,580	2,370	2,810	2,520	2,330
25 - 29	2,960	2,060	2,820	2,560	2,350	2,790	2,600
30 - 34	3,110	2,930	2,030	2,790	2,540	2,330	2,770
35 - 39	2,940	3,060	2,890	2,010	2,760	2,510	2,310
40 - 44	2,690	2,890	3,020	2,850	1,990	2,730	2,490
45 - 49	2,380	2,630	2,820	2,960	2,790	1,950	2,690
50 - 54	2,110	2,300	2,540	2,730	2,870	2,710	1,900
55 - 59	1,820	2,000	2,180	2,410	2,600	2,730	2,590
60 - 64	1,640	1,680	1,840	2,020	2,230	2,410	2,530
65 - 69	1,230	1,430	1,470	1,620	1,780	1,980	2,140
70 - 74	869	983	1,150	1,190	1,320	1,460	1,630
75 - 79	525	600	684	805	837	937	1,040
80 - 84	242	285	329	379	450	471	531
85 +	94.1	113	137	163	193	233	256
0 - 14	7,920	7,840	7,680	6,870	6,190	5,710	5,300
20 - 34	8,150	7,840	7,430	7,720	7,700	7,640	7,500
35 - 44	5,630	5,950	5,910	4,860	4,750	5,240	4,800
45 - 64	7,950	8,610	9,380	10,100	10,500	9,800	9,710
15 - 64	24,600	25,000	25,100	25,500	25,500	24,900	24,000
65 +	2,960	3,410	3,770	4,160	4,580	5,080	5,600

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## APPENDIX IV—HUNGARY

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	9,160	9,320	9,440	9,510	9,530	9,470	9,330
0 - 4	787	713	672	630	580	539	485
5 - 9	807	760	692	655	622	581	531
10 - 14	843	797	752	688	651	618	577
15 - 19	819	831	786	742	698	644	613
20 - 24	634	800	914	772	729	667	638
25 - 29	798	615	782	798	758	717	657
30 - 34	783	779	606	768	784	747	708
35 - 39	705	764	762	594	755	772	736
40 - 44	642	684	744	745	582	741	758
45 - 49	528	618	661	721	724	567	723
50 - 54	461	502	589	632	691	695	545
55 - 59	412	429	468	551	593	650	655
60 - 64	334	369	387	423	500	539	593
65 - 69	255	282	314	330	365	432	468
70 - 74	185	194	217	243	258	286	342
75 - 79	107	118	125	142	161	173	194
80 - 84	44.3	47.2	52.9	57.6	66.8	77.3	84.5
85 +	12.7	14.0	15.5	17.9	20.2	24.0	28.5
0 - 14	2,440	2,270	2,120	1,980	1,860	1,740	1,590
20 - 34	2,220	2,200	2,200	2,340	2,270	2,130	2,000
35 - 44	1,350	1,450	1,510	1,340	1,340	1,510	1,490
45 - 64	1,740	1,920	2,110	2,330	2,510	2,450	2,520
15 - 64	6,120	6,400	6,600	6,750	6,790	6,740	6,620
65 +	604	655	724	790	871	992	1,120

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,480	4,570	4,640	4,680	4,700	4,690	4,630
0 - 4	399	382	345	324	301	275	248
5 - 9	408	385	351	338	317	290	271
10 - 14	425	403	381	348	331	315	294
15 - 19	415	419	398	376	344	328	315
20 - 24	320	406	411	391	370	339	329
25 - 29	396	313	397	403	384	364	344
30 - 34	389	387	306	390	396	379	360
35 - 39	348	379	378	300	383	390	373
40 - 44	306	337	368	369	293	375	382
45 - 49	242	293	324	355	357	285	365
50 - 54	211	229	278	309	339	342	273
55 - 59	191	194	211	258	288	317	320
60 - 64	155	168	173	188	231	258	286
65 - 69	120	128	140	144	159	196	220
70 - 74	86.6	88.8	95.5	105	109	121	151
75 - 79	49.2	52.7	54.7	59.7	66.8	70.2	78.8
80 - 84	18.8	19.8	21.7	23.1	25.8	29.4	31.5
85 +	4.64	4.89	5.26	5.87	6.40	7.25	8.40
0 - 14	1,230	1,150	1,070	1,010	949	886	813
20 - 34	1,110	1,110	1,110	1,180	1,150	1,080	1,020
35 - 44	654	716	746	669	676	765	755
45 - 64	799	884	986	1,110	1,220	1,200	1,240
15 - 64	2,970	3,130	3,240	3,340	3,390	3,380	3,330
65 +	279	294	317	338	367	424	490

## APPENDIX IV—HUNGARY

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.59	6.69	5.20	8.90	6.92	5.36	8.30	6.46	5.04
5 - 9	8.81	6.89	5.69	9.10	7.11	5.85	8.54	6.66	5.53
10 - 14	9.21	7.21	6.18	9.48	7.43	6.35	8.95	7.00	6.02
15 - 19	8.94	7.80	6.57	9.25	8.03	6.74	8.65	7.58	6.40
20 - 24	6.92	8.12	6.80	7.14	8.35	6.98	6.72	7.89	6.64
25 - 29	8.71	8.39	7.04	8.83	8.61	7.21	8.60	8.18	6.87
30 - 34	8.55	8.07	7.59	8.67	8.33	7.77	8.43	7.82	7.40
35 - 39	7.70	6.24	7.89	7.76	6.41	8.05	7.64	6.09	7.72
40 - 44	7.01	7.83	8.12	6.82	7.88	8.25	7.19	7.78	8.00
45 - 49	5.77	7.58	7.75	5.40	7.59	7.88	6.12	7.58	7.61
50 - 54	5.03	6.64	5.84	4.71	6.60	5.90	5.35	6.69	5.78
55 - 59	4.50	5.79	7.02	4.26	5.51	6.91	4.73	6.06	7.12
60 - 64	3.65	4.45	6.35	3.46	4.02	6.18	3.83	4.86	6.53
65 - 69	2.78	3.47	5.01	2.68	3.08	4.75	2.89	3.85	5.27
70 - 74	2.02	2.55	3.66	1.93	2.24	3.26	2.10	2.86	4.06
75 - 79	1.17	1.49	2.08	1.10	1.28	1.70	1.24	1.70	2.45
80 - 84	0.48	0.61	0.91	0.42	0.49	0.68	0.55	0.71	1.13
85 +	0.14	0.19	0.31	0.10	0.13	0.18	0.17	0.25	0.43
0 - 14	26.61	20.78	17.07	27.47	21.47	17.56	25.79	20.12	16.59
20 - 34	24.19	24.58	21.43	24.64	25.29	21.96	23.75	23.88	20.91
35 - 44	14.71	14.08	16.01	14.58	14.29	16.30	14.83	13.87	15.72
45 - 64	18.95	24.46	26.96	17.82	23.71	26.86	20.03	25.19	27.05
15 - 64	66.79	70.91	70.96	66.30	71.32	71.87	67.26	70.52	70.08
65 +	6.60	8.31	11.97	6.23	7.21	10.58	6.95	9.37	13.34

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,670	4,750	4,800	4,830	4,830	4,780	4,700
0 - 4	388	351	330	318	288	284	237
5 - 9	399	375	341	322	306	288	260
10 - 14	418	394	371	338	320	303	283
15 - 19	404	412	388	366	338	316	301
20 - 24	314	394	403	381	359	328	312
25 - 29	402	306	385	395	374	353	323
30 - 34	394	392	300	378	388	368	348
35 - 39	357	385	384	294	372	382	363
40 - 44	336	347	376	376	289	366	376
45 - 49	286	325	337	366	367	282	358
50 - 54	250	273	311	323	352	353	272
55 - 59	221	235	257	293	305	332	335
60 - 64	179	201	214	235	269	281	307
65 - 69	135	154	174	186	206	236	248
70 - 74	98.2	105	121	138	149	165	191
75 - 79	58.1	64.9	70.3	82.0	94.3	103	115
80 - 84	25.5	27.4	31.2	34.5	41.0	47.9	53.0
85 +	8.04	9.13	10.2	12.0	13.8	16.7	20.1
0 - 14	1,210	1,120	1,040	972	914	852	780
20 - 34	1,110	1,090	1,090	1,150	1,120	1,050	983
35 - 44	693	732	760	670	661	748	739
45 - 64	936	1,030	1,120	1,220	1,290	1,250	1,270
15 - 64	3,140	3,270	3,360	3,410	3,410	3,360	3,300
65 +	325	360	407	452	504	569	627

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## APPENDIX IV—NETHERLANDS

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	8,840	9,230	9,550	9,780	9,950	10,000	10,000
0 - 4	942	761	704	664	423	578	524
5 - 9	818	833	754	699	609	618	575
10 - 14	823	814	831	750	697	657	617
15 - 19	814	819	811	826	742	694	654
20 - 24	744	808	814	805	822	744	690
25 - 29	725	737	802	808	800	817	740
30 - 34	685	718	731	795	802	795	812
35 - 39	623	676	710	724	789	796	789
40 - 44	550	614	668	702	716	781	789
45 - 49	485	538	602	656	690	706	769
50 - 54	424	471	523	585	638	673	688
55 - 59	373	403	448	499	558	610	644
60 - 64	319	344	373	414	461	518	567
65 - 69	249	281	303	329	367	410	461
70 - 74	178	201	228	248	270	301	338
75 - 79	112	125	142	162	177	194	218
80 - 84	51.9	62.5	70.5	80.8	92.8	105	113
85 +	23.6	26.6	32.2	37.6	44.0	50.7	59.2
0 - 14	2,480	2,410	2,290	2,110	1,940	1,850	1,720
20 - 34	2,150	2,260	2,350	2,410	2,420	2,360	2,240
35 - 44	1,170	1,290	1,380	1,430	1,510	1,580	1,580
45 - 64	1,600	1,760	1,950	2,150	2,350	2,510	2,670
15 - 64	5,740	6,130	6,480	6,810	7,020	7,130	7,140
65 +	614	696	776	858	951	1,060	1,190

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,420	4,620	4,790	4,920	5,020	5,080	5,090
0 - 4	431	320	301	301	320	337	309
5 - 9	418	426	386	358	338	317	296
10 - 14	419	416	425	384	357	337	316
15 - 19	414	417	414	422	382	365	336
20 - 24	377	410	414	411	420	380	358
25 - 29	363	373	407	411	408	417	378
30 - 34	338	360	370	404	408	406	415
35 - 39	306	334	356	367	401	405	403
40 - 44	270	302	330	352	363	397	402
45 - 49	238	264	296	324	346	358	391
50 - 54	209	231	257	288	316	338	349
55 - 59	184	198	220	245	275	302	323
60 - 64	156	169	183	203	226	254	280
65 - 69	121	137	148	161	179	200	226
70 - 74	85.6	96.8	110	120	131	146	164
75 - 79	53.1	59.6	67.8	77.5	84.8	92.9	105
80 - 84	24.2	29.2	33.1	38.0	43.8	50.8	53.9
85 +	10.4	11.9	14.5	17.0	20.0	22.6	27.4
0 - 14	1,270	1,230	1,170	1,080	1,020	951	880
20 - 34	1,080	1,140	1,190	1,230	1,240	1,200	1,150
35 - 44	576	636	686	719	764	802	805
45 - 64	787	862	956	1,060	1,160	1,258	1,340
15 - 64	2,860	3,060	3,250	3,430	3,550	3,610	3,630
65 +	294	335	373	443	459	512	576

## APPENDIX IV—NETHFRLANDS

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	5.53	6.79	5.22	9.76	6.93	5.29	9.30	6.64	5.14
5 - 9	9.25	7.14	5.72	9.46	7.27	5.80	9.05	7.01	5.64
10 - 14	9.31	7.67	6.14	9.49	7.80	6.21	9.14	7.53	6.07
15 - 19	9.21	8.44	6.51	9.37	8.57	6.59	9.05	8.11	6.43
20 - 24	8.42	8.23	6.87	8.53	8.35	6.94	8.30	8.11	6.79
25 - 29	8.20	8.26	7.37	8.22	8.35	7.43	8.19	8.17	7.30
30 - 34	7.75	8.13	8.08	7.65	8.21	8.16	7.85	8.04	9.00
35 - 39	7.05	7.40	7.85	6.93	7.45	7.92	7.17	7.34	7.74
40 - 44	6.22	7.17	7.85	6.11	7.15	7.91	6.33	7.20	7.90
45 - 49	5.49	6.70	7.65	5.39	6.58	7.69	5.59	6.93	7.62
50 - 54	4.80	5.98	6.85	4.73	5.85	6.86	4.86	6.11	6.83
55 - 59	4.22	5.10	6.41	4.17	4.98	6.35	4.27	5.23	6.47
60 - 64	3.61	4.23	5.64	3.53	4.12	5.51	3.69	4.34	5.78
65 - 69	2.82	3.36	4.59	2.74	3.27	4.44	2.90	3.46	4.74
70 - 74	2.01	2.53	3.36	1.94	2.44	3.22	2.08	2.63	3.51
75 - 79	1.26	1.66	2.17	1.20	1.57	2.06	1.32	1.74	2.28
80 - 84	0.59	0.83	1.12	0.55	0.77	1.06	0.63	0.88	1.19
85 +	0.27	0.38	0.59	0.24	0.35	0.54	0.30	0.42	0.64
0 - 14	28.09	21.60	17.08	28.71	22.00	17.30	27.48	21.19	16.85
20 - 34	24.37	24.61	22.31	24.40	24.90	22.54	24.34	24.32	22.09
35 - 44	13.27	14.57	15.71	13.04	14.60	15.83	13.50	14.54	15.58
45 - 64	18.11	22.01	26.55	17.82	21.53	26.41	18.41	22.51	26.70
15 - 64	64.96	69.64	71.09	64.63	69.60	71.36	65.30	69.68	70.80
65 +	6.94	8.76	11.84	6.66	8.40	11.33	7.22	9.14	12.35

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,420	4,610	4,750	4,860	4,930	4,970	4,960
0 - 4	411	371	343	323	302	281	255
5 - 9	400	407	368	341	321	301	280
10 - 14	404	398	406	366	340	320	301
15 - 19	400	402	377	404	365	338	318
20 - 24	367	398	400	394	402	364	337
25 - 29	362	364	395	397	392	400	362
30 - 34	347	358	361	391	394	389	397
35 - 39	317	342	354	357	388	391	386
40 - 44	280	312	338	350	353	384	387
45 - 49	247	274	306	332	344	348	374
50 - 54	215	240	266	297	322	335	339
55 - 59	189	205	228	254	283	308	321
60 - 64	163	175	190	211	235	264	287
65 - 69	128	144	155	168	188	210	235
70 - 74	92.0	104	118	128	139	155	174
75 - 79	58.5	65.4	74.4	84.7	92.3	101	113
80 - 84	27.7	33.3	37.4	42.8	49.0	53.7	59.0
85 +	13.2	14.7	17.7	20.6	24.0	28.1	31.8
0 - 14	1,220	1,180	1,120	1,030	964	902	836
20 - 34	1,080	1,120	1,160	1,180	1,190	1,150	1,100
35 - 44	597	654	692	707	741	775	773
45 - 64	814	894	990	1,090	1,180	1,260	1,330
15 - 64	2,890	3,070	3,240	3,390	3,480	3,520	3,510
65 +	319	361	403	444	492	548	613

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## APPENDIX IV — SWITZERLAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	4,220	4,260	4,260	4,220	4,150	4,050	3,920
0 - 4	307	277	248	220	188	178	157
5 - 9	317	303	275	244	218	188	170
10 - 14	324	315	301	272	243	217	188
15 - 19	339	321	313	300	272	242	218
20 - 24	327	335	318	310	298	270	240
25 - 29	357	322	330	315	306	294	288
30 - 34	361	351	318	326	311	304	292
35 - 39	337	355	346	314	322	308	301
40 - 44	303	331	348	340	309	319	304
45 - 49	265	294	322	340	333	303	312
50 - 54	237	253	282	309	328	321	293
55 - 59	217	221	238	265	291	310	304
60 - 64	191	196	201	216	242	267	284
65 - 69	146	162	168	173	187	211	232
70 - 74	101	113	127	132	137	150	169
75 - 79	60.8	66.9	76.3	86.1	90.6	94.8	104
80 - 84	26.0	30.8	34.5	39.9	46.0	48.9	51.8
85 +	9.03	10.9	13.1	15.2	18.1	21.3	23.6
0 - 14	948	895	822	737	659	591	529
20 - 34	1,050	1,010	966	951	915	868	800
35 - 44	640	686	694	654	631	627	605
45 - 64	910	964	1,040	1,130	1,190	1,200	1,190
15 - 64	2,930	2,980	3,020	3,040	3,010	2,940	2,810
65 +	342	284	419	447	479	525	580

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,040	2,060	2,070	2,050	2,020	1,980	1,920
0 - 4	156	141	125	112	101	80.7	80.3
5 - 9	161	154	140	124	111	100	80.0
10 - 14	164	160	153	139	124	111	88.7
15 - 19	171	162	159	152	138	128	110
20 - 24	164	169	160	157	151	137	128
25 - 29	176	162	166	159	155	149	136
30 - 34	174	173	160	164	157	154	148
35 - 39	160	171	170	157	162	155	152
40 - 44	142	157	167	167	154	160	153
45 - 49	124	137	152	163	163	151	156
50 - 54	111	117	131	145	156	156	145
55 - 59	102	102	109	121	135	146	147
60 - 64	87.8	90.5	91.2	97.2	109	122	132
65 - 69	66.0	72.9	75.6	76.7	82.2	92.5	104
70 - 74	43.6	49.7	55.5	58.0	59.3	64.1	72.7
75 - 79	25.2	28.0	32.3	36.4	38.5	39.9	43.5
80 - 84	10.2	12.2	13.8	16.2	18.8	20.2	21.2
85 +	3.30	3.97	4.83	5.61	6.78	8.02	8.86
0 - 14	481	455	418	375	336	302	270
20 - 34	514	504	486	480	463	440	406
35 - 44	302	328	337	324	316	315	305
45 - 64	425	446	483	526	563	575	580
15 - 64	1,410	1,440	1,470	1,480	1,480	1,450	1,400
65 +	148	167	182	193	206	225	250

## APPENDIX IV — SWITZERLAND

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.27	5.21	4.01	7.64	5.46	4.18	6.92	4.98	3.84
5 - 9	7.50	5.78	4.50	7.89	6.05	4.68	7.15	5.53	4.32
10 - 14	7.67	6.47	4.98	8.03	6.78	5.19	7.33	6.18	4.78
15 - 19	8.03	7.11	5.51	8.38	7.41	5.73	7.70	6.82	5.29
20 - 24	7.74	7.35	6.12	8.03	7.66	6.35	7.47	7.05	5.89
25 - 29	8.45	7.47	6.83	8.62	7.76	7.08	8.29	7.19	6.59
30 - 34	8.55	7.73	7.44	8.52	8.00	7.70	8.57	7.47	7.19
35 - 39	7.98	7.44	7.67	7.84	7.66	7.91	8.11	7.24	7.44
40 - 44	7.17	8.06	7.75	6.96	8.15	7.96	7.37	7.98	7.54
45 - 49	6.27	8.06	7.95	6.08	7.95	8.12	6.46	8.16	7.79
50 - 54	5.61	7.32	7.47	5.44	7.07	7.55	5.77	7.56	7.39
55 - 59	5.14	6.28	7.75	5.00	5.90	7.65	5.27	6.64	7.84
60 - 64	4.52	5.12	7.24	4.30	4.74	6.87	4.72	5.49	7.59
65 - 69	3.46	4.10	5.91	3.23	3.74	5.41	3.67	4.44	6.39
70 - 74	2.38	3.14	4.31	2.14	2.83	3.78	2.61	3.44	4.81
75 - 79	1.44	2.04	2.65	1.23	1.78	2.26	1.63	2.29	3.02
80 - 84	0.62	0.95	1.32	0.50	0.79	1.10	0.72	1.09	1.53
85 +	0.21	0.36	0.60	0.16	0.27	0.46	0.26	0.44	0.73
0 - 14	22.44	17.47	13.49	23.57	18.29	14.05	21.39	16.69	12.94
20 - 34	24.74	22.54	20.39	25.18	23.41	21.13	24.32	21.72	19.68
35 - 44	15.15	15.50	15.42	14.86	15.80	15.87	15.48	15.22	14.98
45 - 64	21.54	26.79	30.41	20.81	25.67	30.19	22.22	27.85	30.62
15 - 64	69.45	71.94	71.72	69.17	72.30	72.92	69.72	71.61	70.57
65 +	8.11	10.59	14.79	7.27	9.41	13.03	8.89	11.70	16.49

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,180	2,200	2,190	2,170	2,130	2,070	2,000
0 - 4	151	139	122	108	98.7	88.9	78.8
5 - 9	156	149	135	120	107	98.1	88.4
10 - 14	160	155	148	134	119	108	88.8
15 - 19	168	159	154	148	134	118	108
20 - 24	163	166	158	153	147	133	118
25 - 29	181	160	164	156	151	145	132
30 - 34	187	178	158	162	154	150	144
35 - 39	177	184	176	157	160	153	149
40 - 44	161	174	181	173	155	159	151
45 - 49	141	157	170	177	170	152	156
50 - 54	126	136	151	164	172	165	148
55 - 59	115	119	129	144	156	164	157
60 - 64	103	106	110	119	133	145	152
65 - 69	80.1	89.4	92.5	96.3	105	118	128
70 - 74	56.9	63.7	71.5	74.5	78.0	85.4	96.3
75 - 79	35.6	38.9	44.0	49.7	52.1	54.9	60.5
80 - 84	15.8	18.6	20.7	23.7	27.2	28.7	30.6
85 +	5.73	6.90	8.30	9.58	11.3	13.3	14.7
0 - 14	467	440	404	362	323	289	259
20 - 34	531	504	480	471	452	428	394
35 - 44	338	358	357	330	315	312	300
45 - 64	485	518	560	604	631	626	613
15 - 64	1,520	1,540	1,550	1,550	1,530	1,490	1,410
65 +	194	218	237	254	274	300	330

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## APPENDIX IV—NORTHERN EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	20,100	20,400	20,500	20,500	20,300	20,000	19,500
0 - 4	1,540	1,480	1,280	1,160	1,040	841	844
5 - 9	1,480	1,520	1,400	1,290	1,140	1,038	985
10 - 14	1,600	1,470	1,510	1,320	1,200	1,140	1,030
15 - 19	1,710	1,590	1,450	1,500	1,380	1,250	1,130
20 - 24	1,640	1,680	1,570	1,430	1,480	1,370	1,240
25 - 29	1,720	1,610	1,660	1,540	1,410	1,460	1,350
30 - 34	1,680	1,690	1,580	1,630	1,520	1,400	1,450
35 - 39	1,530	1,640	1,660	1,560	1,610	1,500	1,380
40 - 44	1,360	1,490	1,610	1,630	1,540	1,590	1,480
45 - 49	1,210	1,320	1,450	1,570	1,590	1,500	1,560
50 - 54	1,090	1,160	1,270	1,400	1,520	1,540	1,460
55 - 59	960	1,030	1,100	1,210	1,330	1,440	1,460
60 - 64	825	878	940	1,010	1,110	1,230	1,330
65 - 69	654	721	769	827	888	982	1,090
70 - 74	473	528	585	627	678	731	811
75 - 79	337	337	377	421	453	491	533
80 - 84	177	194	195	220	246	267	291
85 +	90.1	99.3	111	117	131	149	166
0 - 14	4,620	4,400	4,190	3,810	3,450	3,110	2,810
20 - 34	5,030	4,980	4,810	4,610	4,410	4,230	4,040
35 - 44	2,890	3,140	3,270	3,190	3,150	3,090	2,870
45 - 64	4,080	4,390	4,770	5,190	5,550	5,710	5,810
15 - 64	13,700	14,100	14,300	14,500	14,500	14,300	13,800
65 +	1,730	1,880	2,040	2,210	2,400	2,620	2,890

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	9,830	10,000	10,190	10,100	10,100	9,920	9,720
0 - 4	787	725	655	591	533	482	433
5 - 9	752	774	715	642	585	529	479
10 - 14	813	746	768	710	644	582	527
15 - 19	869	805	738	762	704	639	578
20 - 24	830	854	794	728	752	687	633
25 - 29	864	815	840	781	718	742	682
30 - 34	835	848	800	827	770	709	735
35 - 39	746	817	832	788	815	759	701
40 - 44	650	727	801	816	774	802	749
45 - 49	575	629	707	775	796	756	784
50 - 54	513	548	603	678	748	766	731
55 - 59	453	479	515	566	637	705	725
60 - 64	385	408	434	467	515	582	645
65 - 69	299	331	353	376	406	450	509
70 - 74	209	238	264	282	304	330	367
75 - 79	144	146	166	186	200	216	237
80 - 84	74.0	80.7	82.4	94.7	107	116	126
85 +	36.0	39.8	44.3	46.9	53.7	62.1	69.5
0 - 14	2,350	2,240	2,140	1,950	1,760	1,590	1,440
20 - 34	2,550	2,520	2,430	2,340	2,240	2,150	2,060
35 - 44	1,400	1,540	1,630	1,600	1,590	1,560	1,450
45 - 64	1,930	2,060	2,260	2,490	2,700	2,800	2,880
15 - 64	6,720	6,930	7,060	7,190	7,230	7,160	6,970
65 +	762	834	909	986	1,070	1,170	1,310

## APPENDIX IV—NORTHERN EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.68	5.63	4.32	8.01	5.84	4.46	7.38	5.43	4.19
5 - 9	7.36	6.18	4.79	7.65	6.40	4.93	7.09	5.97	4.64
10 - 14	7.99	6.78	5.26	8.27	7.01	5.42	7.73	6.56	5.10
15 - 19	8.53	7.30	5.79	8.84	7.52	5.95	8.23	7.07	5.64
20 - 24	8.17	6.99	6.35	8.44	7.19	6.51	7.90	6.80	6.16
25 - 29	8.56	7.52	6.92	8.78	7.71	7.08	8.34	7.34	6.76
30 - 34	8.35	7.97	7.40	8.49	8.17	7.56	8.22	7.77	7.23
35 - 39	7.61	7.61	7.08	7.59	7.78	7.22	7.63	7.45	6.95
40 - 44	6.79	7.94	7.59	6.61	8.06	7.70	6.97	7.82	7.48
45 - 49	6.02	7.68	7.97	5.84	7.70	8.07	6.18	7.66	7.87
50 - 54	5.42	6.83	7.45	5.22	6.69	7.52	5.62	6.96	7.39
55 - 59	4.78	5.88	7.49	4.61	5.59	7.46	4.95	6.17	7.53
60 - 64	4.11	4.91	6.81	3.92	4.62	6.64	4.30	5.21	6.98
65 - 69	3.26	4.03	5.56	3.05	3.71	5.24	3.46	4.34	5.87
70 - 74	2.36	3.06	4.15	2.13	2.79	3.78	2.58	3.32	4.52
75 - 79	1.68	2.05	2.73	1.46	1.84	2.44	1.88	2.26	3.01
80 - 84	0.88	1.07	1.49	0.75	0.94	1.30	1.00	1.20	1.68
85 +	0.45	0.57	0.85	0.37	0.46	0.72	0.53	0.67	0.99
0 - 14	23.04	18.60	14.37	23.92	19.25	14.81	22.19	17.97	13.93
20 - 34	25.07	22.48	20.66	25.71	23.07	21.16	24.46	21.90	20.17
35 - 44	14.40	15.55	14.67	14.19	15.84	14.92	14.60	15.27	14.42
45 - 64	20.33	25.30	29.73	19.58	24.59	29.69	21.06	25.99	29.77
15 - 64	68.33	70.62	70.85	68.32	71.02	71.71	68.34	70.24	70.00
65 +	8.62	10.78	14.78	7.75	9.74	13.48	9.46	11.79	16.07

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	10,200	10,400	10,400	10,400	10,300	10,100	9,820
0 - 4	754	894	880	804	808	489	411
5 - 9	725	744	888	820	559	504	458
10 - 14	791	720	739	882	818	589	501
15 - 19	842	782	714	735	877	819	554
20 - 24	809	830	774	706	726	670	607
25 - 29	853	795	818	762	696	719	680
30 - 34	841	838	783	807	753	690	710
35 - 39	780	826	824	773	796	743	683
40 - 44	713	765	812	812	762	786	734
45 - 49	633	695	748	795	795	748	773
50 - 54	575	611	671	723	770	772	726
55 - 59	507	546	582	641	690	735	739
60 - 64	440	470	506	540	596	644	686
65 - 69	354	390	417	451	482	532	577
70 - 74	264	291	321	344	374	401	444
75 - 79	193	191	211	235	253	273	296
80 - 84	103	113	112	125	140	151	165
85 +	54.1	59.5	66.7	69.7	77.2	87.3	96.8
0 - 14	2,270	2,160	2,050	1,870	1,680	1,520	1,370
20 - 34	2,500	2,460	2,380	2,270	2,180	2,080	1,980
35 - 44	1,490	1,590	1,640	1,580	1,560	1,530	1,420
45 - 64	2,150	2,320	2,510	2,700	2,850	2,900	2,920
15 - 64	6,990	7,160	7,230	7,290	7,260	7,120	6,880
65 +	968	1,040	1,130	1,220	1,320	1,450	1,580

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## APPENDIX IV—DENMARK

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,820	3,930	4,010	4,050	4,060	4,040	3,990
0 - 4	314	288	274	249	227	208	181
5 - 9	298	311	285	271	247	227	209
10 - 14	313	297	309	282	270	247	228
15 - 19	331	311	295	308	283	268	245
20 - 24	322	327	309	293	306	281	287
25 - 29	323	318	324	305	291	304	288
30 - 34	313	319	315	321	303	289	301
35 - 39	285	308	315	312	317	300	287
40 - 44	259	280	304	311	308	315	297
45 - 49	227	253	274	298	305	302	309
50 - 54	203	219	244	265	288	295	294
55 - 59	180	192	209	232	252	274	282
60 - 64	152	165	176	192	214	233	253
65 - 69	117	132	145	155	169	189	207
70 - 74	84.8	94.0	107	118	126	138	155
75 - 79	53.9	58.9	65.7	75.1	83.1	89.8	98.8
80 - 84	28.5	29.5	32.5	36.6	42.1	47.0	51.1
85 +	12.9	14.4	15.4	17.4	19.7	23.0	26.5
0 - 14	925	906	878	813	744	683	626
20 - 34	958	964	948	919	900	884	857
35 - 44	544	588	619	623	625	615	584
45 - 64	761	829	903	987	1,060	1,100	1,140
15 - 64	2,590	2,690	2,770	2,840	2,880	2,870	2,820
65 +	297	329	365	402	440	487	538

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,880	1,950	1,990	2,020	2,030	2,020	2,000
0 - 4	160	152	140	127	110	107	87.8
5 - 9	151	158	150	138	120	110	107
10 - 14	158	150	157	148	138	120	110
15 - 19	167	157	149	156	149	137	125
20 - 24	162	165	156	148	155	148	130
25 - 29	161	160	163	154	147	154	147
30 - 34	154	159	158	162	153	146	153
35 - 39	139	152	157	157	160	152	145
40 - 44	125	137	150	155	155	159	150
45 - 49	110	122	134	147	152	152	156
50 - 54	97.8	106	118	130	142	147	148
55 - 59	87.3	92.3	101	112	123	135	140
60 - 64	73.6	79.7	84.4	92.1	103	113	124
65 - 69	56.4	63.9	69.4	73.8	80.7	90.2	99.5
70 - 74	39.5	44.9	51.2	55.9	59.6	65.6	73.6
75 - 79	24.6	27.3	31.2	35.7	39.2	42.0	46.5
80 - 84	12.9	13.4	14.9	17.2	19.9	22.0	23.8
85 +	5.56	6.25	6.73	7.62	8.93	10.5	12.1
0 - 14	469	460	447	414	380	349	321
20 - 34	477	484	477	464	455	448	436
35 - 44	264	289	307	312	315	311	295
45 - 64	369	400	437	481	520	547	568
15 - 64	1,280	1,330	1,370	1,410	1,440	1,440	1,420
65 +	139	156	173	190	208	230	256

## APPENDIX IV—DENMARK

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.23	6.15	4.79	8.49	6.30	4.89	7.97	6.00	4.69
5 - 9	7.91	6.69	5.24	8.01	6.84	5.35	7.61	6.54	5.13
10 - 14	8.20	7.23	5.67	8.38	7.39	5.80	8.02	7.08	5.53
15 - 19	8.67	7.60	6.14	8.86	7.73	6.25	8.49	7.47	6.04
20 - 24	8.44	7.23	6.69	8.60	7.34	6.80	8.28	7.13	6.59
25 - 29	8.46	7.53	7.25	8.54	7.63	7.35	8.38	7.42	7.14
30 - 34	8.20	7.92	7.55	8.17	8.03	7.65	8.23	7.82	7.45
35 - 39	7.47	7.70	7.20	7.38	7.78	7.25	7.56	7.62	7.14
40 - 44	6.79	7.68	7.45	6.63	7.68	7.50	6.94	7.67	7.40
45 - 49	5.95	7.36	7.75	5.84	7.29	7.80	6.06	7.42	7.70
50 - 54	5.31	6.54	7.37	5.19	6.44	7.40	5.43	6.64	7.34
55 - 59	4.72	5.73	7.07	4.63	5.55	7.00	4.80	5.90	7.14
60 - 64	3.97	4.73	6.34	3.91	4.57	6.20	4.03	4.90	6.49
65 - 69	3.07	3.83	5.18	2.99	3.66	4.97	3.15	4.00	5.38
70 - 74	2.22	2.91	3.89	2.10	2.77	3.68	2.34	3.04	4.11
75 - 79	1.41	1.85	2.48	1.31	1.77	2.32	1.52	1.94	2.63
80 - 84	0.75	0.90	1.28	0.68	0.85	1.19	0.81	0.95	1.37
85 +	0.34	0.43	0.66	0.30	0.38	0.60	0.38	0.47	0.72
0 - 14	24.24	20.07	15.70	24.89	20.52	16.04	23.60	19.61	15.35
20 - 34	25.10	22.68	21.49	25.31	23.00	21.80	24.90	22.37	21.18
35 - 44	14.23	15.38	14.64	14.01	15.47	14.75	14.49	15.29	14.54
45 - 64	19.95	24.35	28.53	19.56	23.85	28.39	20.33	24.85	28.67
15 - 64	67.97	70.02	70.81	67.74	70.05	71.19	68.20	69.98	70.43
65 +	7.79	9.92	13.49	7.37	9.43	12.77	8.20	10.40	14.22

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,930	1,980	2,020	2,030	2,030	2,020	1,990
0 - 4	154	146	134	122	111	102	98.2
5 - 9	147	153	146	138	121	111	108
10 - 14	155	147	152	144	132	121	110
15 - 19	164	154	146	152	144	132	120
20 - 24	160	162	153	145	131	123	121
25 - 29	162	158	161	151	144	130	122
30 - 34	159	160	157	159	150	143	148
35 - 39	146	156	158	155	157	148	142
40 - 44	134	143	154	156	153	156	147
45 - 49	117	131	140	151	153	150	153
50 - 54	105	113	126	135	146	148	146
55 - 59	92.8	99.4	108	120	129	139	142
60 - 64	77.9	85.7	91.9	99.6	111	120	129
65 - 69	60.8	68.5	75.6	81.4	88.4	98.9	107
70 - 74	45.3	49.1	55.7	61.8	66.7	72.7	81.6
75 - 79	29.3	31.6	34.5	39.4	43.9	47.8	52.3
80 - 84	15.6	16.1	17.6	19.4	22.2	25.0	27.3
85 +	7.38	8.10	8.66	9.62	10.8	12.5	14.4
0 - 14	456	446	431	399	364	334	305
20 - 34	481	480	471	455	445	436	421
35 - 44	280	299	312	311	310	304	289
45 - 64	393	429	466	506	539	557	570
15 - 64	1,320	1,360	1,390	1,420	1,440	1,430	1,400
65 +	158	173	192	212	232	257	283

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## APPENDIX IV — ESTONIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,130	1,130	1,120	1,100	1,070	1,040	1,000
0 - 4	70.0	71.4	63.1	56.9	51.9	48.4	40.9
5 - 9	67.3	77.9	69.2	62.0	56.1	51.0	46.0
10 - 14	66.7	82.2	77.1	68.3	61.5	55.9	50.8
15 - 19	65.7	85.4	81.2	76.2	68.6	60.8	55.2
20 - 24	75.7	84.1	84.0	79.9	75.1	67.6	60.1
25 - 29	94.1	74.1	82.4	82.4	78.6	74.0	68.7
30 - 34	96.9	91.9	72.5	70.8	81.0	77.4	73.0
35 - 39	91.1	94.6	89.9	71.1	79.4	79.7	76.3
40 - 44	79.6	88.6	92.2	87.9	69.7	78.0	78.4
45 - 49	70.5	77.0	85.7	89.4	85.4	67.9	76.1
50 - 54	66.6	67.3	73.6	82.2	85.8	82.2	65.4
55 - 59	58.4	62.3	63.0	69.2	77.3	80.9	77.7
60 - 64	52.2	53.2	56.6	57.5	63.2	70.8	74.3
65 - 69	43.1	45.2	46.1	49.2	50.2	55.4	62.1
70 - 74	32.3	34.5	36.3	37.2	40.0	40.9	45.2
75 - 79	22.6	22.8	24.5	25.8	26.7	28.8	29.7
80 - 84	10.8	12.9	13.1	14.1	15.0	15.7	17.0
85 +	4.70	5.79	7.07	7.61	8.34	9.07	9.68
0 - 14	250	232	210	188	169	153	138
20 - 34	267	250	239	243	235	219	200
35 - 44	171	183	182	159	149	158	155
45 - 64	248	260	279	298	312	302	294
15 - 64	771	779	781	777	764	739	703
65 +	114	121	127	134	140	150	164

Age Groups	%ale Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	534	533	529	521	511	498	482
0 - 4	40.7	38.5	32.3	28.1	26.5	23.8	21.0
5 - 9	42.3	39.7	35.7	31.7	28.7	26.1	23.6
10 - 14	43.8	41.7	39.3	35.4	31.4	28.5	26.0
15 - 19	43.4	43.1	41.2	38.8	35.0	31.0	28.2
20 - 24	37.9	42.5	42.3	40.4	38.1	34.4	30.6
25 - 29	47.4	37.0	41.5	41.4	39.6	37.5	33.8
30 - 34	48.2	46.1	36.1	40.6	40.5	38.9	36.9
35 - 39	43.5	46.8	44.9	35.2	39.7	39.8	38.3
40 - 44	35.9	41.9	45.3	43.6	34.3	38.8	38.9
45 - 49	30.9	34.3	40.1	43.5	42.0	33.2	37.6
50 - 54	29.0	29.0	32.2	37.9	41.2	39.9	31.6
55 - 59	25.5	26.4	26.5	29.7	35.0	38.2	37.2
60 - 64	22.0	22.3	23.3	23.5	26.4	31.3	34.3
65 - 69	17.5	18.3	18.6	19.5	19.8	22.4	26.7
70 - 74	12.4	13.3	14.0	14.4	15.2	15.6	17.7
75 - 79	8.11	8.20	8.87	9.43	9.78	10.4	10.8
80 - 84	3.67	4.27	4.37	4.77	5.12	5.36	5.77
85 +	1.46	1.70	2.02	2.17	2.42	2.66	2.87
0 - 14	127	118	107	96.2	86.6	78.4	70.6
20 - 34	134	126	120	122	118	111	101
35 - 44	79.4	88.7	90.2	78.8	74.0	78.6	77.2
45 - 64	107	112	122	135	145	143	141
15 - 64	364	369	373	375	372	380	348
65 +	43.1	45.8	47.9	50.3	52.3	58.4	63.8

## APPENDIX IV—ESTONIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.03	5.18	4.07	7.63	5.58	4.36	6.51	4.81	3.81
5 - 9	7.34	5.64	4.58	7.93	6.08	4.90	6.82	5.24	4.29
10 - 14	7.64	6.31	5.06	8.21	6.79	5.39	7.14	5.87	4.75
15 - 19	7.55	6.94	5.49	8.13	7.45	5.85	7.04	6.47	5.17
20 - 24	6.67	7.27	5.98	7.10	7.75	6.35	6.29	6.84	5.64
25 - 29	8.29	7.50	6.64	8.88	7.95	7.03	7.77	7.10	6.28
30 - 34	8.54	7.35	7.27	9.03	7.79	7.66	8.10	6.96	6.91
35 - 39	8.03	6.47	7.60	8.15	6.76	7.95	7.92	6.21	7.27
40 - 44	7.02	8.00	7.80	6.73	8.37	8.07	7.27	7.67	7.56
45 - 49	6.21	8.14	7.58	5.79	8.35	7.80	6.59	7.95	7.37
50 - 54	5.87	7.48	6.51	5.43	7.27	6.56	6.26	7.67	6.47
55 - 59	5.18	6.30	7.73	4.78	5.70	7.72	5.54	6.84	7.75
60 - 64	4.60	5.25	7.40	4.12	4.51	7.12	5.03	5.89	7.65
65 - 69	3.80	4.48	6.18	3.28	3.74	5.54	4.26	5.14	6.77
70 - 74	2.85	3.39	4.50	2.32	2.76	3.67	3.31	3.95	5.26
75 - 79	1.99	2.35	2.96	1.52	1.81	2.24	2.41	2.84	3.62
80 - 84	0.95	1.29	1.69	0.69	0.92	1.20	1.19	1.62	2.14
85 +	0.41	0.69	0.96	0.27	0.42	0.60	0.54	0.94	1.30
0 - 14	22.92	17.13	13.71	23.76	18.46	14.65	20.47	15.93	12.84
20 - 34	23.51	22.12	19.89	25.02	23.49	21.04	22.17	20.89	18.83
35 - 44	15.05	14.47	15.40	14.88	15.12	16.02	15.19	13.88	14.83
45 - 64	21.87	27.15	29.22	20.13	25.83	29.19	23.41	28.34	29.24
15 - 64	67.97	70.68	70.00	68.15	71.89	72.10	67.81	69.59	68.06
65 +	10.01	12.19	16.29	8.08	9.65	13.25	11.72	14.49	19.10

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	601	598	590	578	563	544	523
0 - 4	39.1	34.9	30.8	27.8	25.2	22.6	19.8
5 - 9	41.0	38.2	34.2	30.8	27.4	24.9	22.4
10 - 14	42.9	40.5	37.8	33.9	30.1	27.2	24.8
15 - 19	42.3	42.3	40.0	37.4	33.6	29.8	27.0
20 - 24	37.8	41.6	41.7	39.5	37.0	33.2	29.5
25 - 29	46.7	37.1	40.9	41.0	39.0	36.5	32.8
30 - 34	48.7	45.8	36.4	40.2	40.5	38.5	36.1
35 - 39	47.6	47.8	45.0	35.9	39.7	39.9	38.0
40 - 44	43.7	46.7	46.9	44.3	35.4	39.2	39.5
45 - 49	39.6	42.7	45.6	45.9	43.4	34.7	38.5
50 - 54	37.6	38.3	41.4	44.3	44.6	42.3	33.8
55 - 59	33.3	35.9	36.5	39.5	42.3	42.7	40.5
60 - 64	30.2	30.9	33.3	34.0	36.8	39.5	40.0
65 - 69	25.6	26.9	27.5	29.7	30.4	33.0	35.4
70 - 74	19.9	21.2	22.3	22.8	24.8	25.3	27.5
75 - 79	14.5	14.6	15.6	16.4	16.9	18.4	18.9
80 - 84	7.16	8.62	8.73	9.36	9.92	10.3	11.2
85 +	3.24	4.09	5.05	5.44	5.92	6.41	6.81
0 - 14	123	114	103	92.0	82.7	74.7	67.1
20 - 34	133	125	119	121	116	108	98.4
35 - 44	91.3	94.5	91.9	80.2	75.1	79.1	77.5
45 - 64	141	148	157	164	167	159	153
15 - 64	408	409	408	402	392	376	356
65 +	70.4	75.4	79.2	83.7	87.9	93.4	99.8

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## APPENDIX IV—FINLAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,850	3,950	4,000	4,020	4,010	3,980	3,920
0 - 4	333	314	288	280	237	217	197
5 - 9	314	326	308	282	257	233	216
10 - 14	337	310	322	305	278	255	233
15 - 19	340	333	306	319	301	277	253
20 - 24	317	333	326	300	313	287	273
25 - 29	335	310	324	319	294	308	282
30 - 34	327	327	303	317	312	289	303
35 - 39	286	319	318	296	312	307	285
40 - 44	251	278	310	310	289	305	301
45 - 49	220	241	268	300	301	281	297
50 - 54	204	209	229	255	286	288	269
55 - 59	177	189	195	214	238	268	271
60 - 64	145	158	170	175	193	217	245
65 - 69	110	123	135	145	151	167	188
70 - 74	70.5	85.6	96.4	106	116	121	134
75 - 79	48.5	48.0	58.8	66.8	74.2	81.2	85.5
80 - 84	24.6	27.0	26.9	33.2	38.0	42.4	46.7
85 +	14.0	15.2	16.9	17.6	21.0	24.6	28.3
0 - 14	984	950	916	847	773	705	645
20 - 34	979	970	953	936	919	894	868
35 - 44	537	597	628	606	601	612	586
45 - 64	746	797	862	944	1,020	1,050	1,080
15 - 64	2,600	2,700	2,750	2,810	2,840	2,840	2,790
65 +	267	299	334	369	400	436	483

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,900	1,940	1,970	1,980	1,980	1,960	1,930
0 - 4	170	160	146	133	121	111	101
5 - 9	160	166	157	144	131	118	110
10 - 14	171	158	164	155	142	130	118
15 - 19	173	169	156	162	153	141	128
20 - 24	161	169	165	152	159	151	138
25 - 29	170	157	164	161	149	156	148
30 - 34	164	165	153	160	157	146	153
35 - 39	142	159	160	149	157	154	144
40 - 44	122	137	154	155	145	153	151
45 - 49	106	116	131	148	150	140	148
50 - 54	97.6	99.4	109	123	140	142	133
55 - 59	83.5	88.6	90.8	99.6	113	129	132
60 - 64	66.6	72.7	77.6	79.9	88.2	101	116
65 - 69	48.5	54.5	59.9	64.5	66.8	74.2	85.2
70 - 74	30.2	36.4	41.2	45.8	49.6	51.8	58.0
75 - 79	19.8	19.9	24.3	27.8	31.1	34.0	35.8
80 - 84	9.87	10.9	11.1	13.6	15.7	17.7	19.5
85 +	5.87	6.34	7.06	7.45	8.92	10.5	12.2
0 - 14	501	484	467	432	394	360	330
20 - 34	495	491	482	473	465	453	440
15 - 44	264	296	314	304	302	307	295
45 - 64	354	377	408	451	491	512	529
15 - 64	1,290	1,330	1,360	1,390	1,410	1,440	1,390
65 +	114	128	144	150	172	188	211

## APPENDIX IV—FINLAND

Age Groups	Percentage Age Population								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	8.64	6.47	5.03	8.94	6.71	5.22	8.35	6.22	4.85
5 - 9	8.15	7.01	5.49	8.42	7.27	5.69	7.89	6.76	5.29
10 - 14	8.75	7.58	5.95	9.00	7.83	6.15	8.50	7.35	5.75
15 - 19	9.82	7.93	6.46	9.10	8.18	6.67	8.55	7.69	6.25
20 - 24	8.23	7.46	6.97	8.47	7.67	7.19	7.99	7.25	6.76
25 - 29	8.69	7.93	7.45	8.94	8.13	7.65	8.45	7.74	7.26
30 - 34	8.49	7.88	7.73	8.63	8.08	7.91	8.35	7.69	7.56
35 - 39	7.42	7.36	7.28	7.47	7.52	7.45	7.38	7.20	7.11
40 - 44	6.51	7.71	7.68	6.42	7.83	7.81	6.61	7.60	7.56
45 - 49	5.71	7.46	7.58	5.58	7.47	7.65	5.84	7.45	7.51
50 - 54	5.28	6.34	6.87	5.13	6.21	6.88	5.43	6.47	6.86
55 - 59	4.59	5.31	6.92	4.39	5.03	6.83	4.77	5.59	7.01
60 - 64	3.77	4.36	6.25	3.50	4.03	6.00	4.03	4.68	6.50
65 - 69	2.85	3.62	4.80	2.55	3.26	4.41	3.15	3.97	5.19
70 - 74	1.83	2.65	3.43	1.59	2.31	3.00	2.06	2.97	3.86
75 - 79	1.26	1.66	2.18	1.04	1.40	1.85	1.47	1.91	2.51
80 - 84	0.64	0.83	1.19	0.52	0.69	1.01	0.75	0.96	1.37
85 +	0.36	0.44	0.72	0.31	0.38	0.63	0.41	0.49	0.81
0 - 14	25.54	21.06	16.47	26.36	21.81	17.07	24.74	20.34	15.89
20 - 34	25.41	23.28	22.16	26.04	23.88	22.75	24.79	22.69	21.58
35 - 44	13.94	15.07	14.96	13.89	15.35	15.26	13.98	14.80	14.67
45 - 64	19.35	23.47	27.62	18.61	22.75	27.36	20.08	24.18	27.88
15 - 64	67.52	69.75	71.20	67.63	70.15	72.04	67.41	69.36	70.37
65 +	6.94	9.19	12.33	6.01	8.04	10.90	7.85	10.30	13.74

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,750	2,000	2,030	2,040	2,030	2,020	1,980
0 - 4	163	154	140	127	110	108	86.2
5 - 9	154	160	151	138	128	114	105
10 - 14	166	152	138	120	137	125	114
15 - 19	167	164	150	137	128	130	124
20 - 24	156	164	161	148	154	148	134
25 - 29	165	153	160	158	145	152	144
30 - 34	163	162	150	157	155	143	150
35 - 39	144	160	158	147	155	153	141
40 - 44	129	141	156	155	144	157	150
45 - 49	114	125	137	152	151	141	149
50 - 54	106	110	120	132	146	146	136
55 - 59	93.2	100	104	114	125	139	139
60 - 64	78.7	85.5	92.2	95.5	105	116	129
65 - 69	61.4	68.5	74.8	81.0	84.3	92.9	103
70 - 74	40.3	49.2	55.2	60.6	66.0	69.1	76.5
75 - 79	28.7	28.1	34.5	39.0	43.1	47.2	49.7
80 - 84	14.7	16.1	15.8	19.6	22.3	24.7	27.2
85 +	8.11	8.85	9.80	10.1	12.1	14.1	16.1
0 - 14	483	466	449	415	379	345	315
20 - 34	484	479	471	463	454	441	428
35 - 44	273	301	314	302	299	305	291
45 - 64	392	421	453	494	527	542	553
15 - 64	1,320	1,360	1,390	1,420	1,430	1,420	1,400
65 +	153	171	190	210	228	248	273

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## APPENDIX IV—LATVIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,990	2,010	2,010	2,000	1,980	1,950	1,910
0 - 4	162	200	128	118	111	109	88.2
5 - 9	155	158	111	125	110	100	100
10 - 14	164	153	156	130	128	118	109
15 - 19	156	162	152	155	139	124	116
20 - 24	109	153	160	150	153	137	128
25 - 29	165	107	151	157	148	151	128
30 - 34	172	162	105	149	155	146	150
35 - 39	159	169	159	104	146	153	144
40 - 44	129	155	165	156	102	144	150
45 - 49	116	126	150	161	152	90.4	141
50 - 54	109	111	120	145	155	147	96.1
55 - 59	102	102	105	114	136	146	139
60 - 64	92.0	92.8	93.2	95.8	104	125	134
65 - 69	78.3	79.6	80.6	81.2	83.7	91.7	110
70 - 74	54.1	62.6	64.0	65.1	66.0	68.3	75.2
75 - 79	39.8	38.3	44.5	45.9	46.9	47.9	49.8
80 - 84		23.2	22.4	26.1	27.2	28.0	28.7
85 +	9.74	10.6	13.7	14.4	16.6	18.0	19.0
0 - 14	481	455	425	383	351	327	302
20 - 34	447	423	416	455	456	434	408
35 - 44	288	324	324	259	248	297	294
45 - 64	419	432	469	515	547	517	510
15 - 64	1,310	1,340	1,360	1,380	1,390	1,370	1,330
65 +	199	214	225	233	240	254	283

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	934	946	950	950	946	938	924
0 - 4	82.5	78.5	85.1	80.8	86.6	82.8	47.8
5 - 9	79.0	80.4	71.9	83.9	59.3	55.8	51.8
10 - 14	83.0	78.0	79.6	71.5	63.4	58.9	55.4
15 - 19	79.3	82.0	77.2	78.8	70.8	62.8	58.4
20 - 24	54.6	77.9	80.7	76.1	77.8	68.8	62.2
25 - 29	91.3	53.5	76.5	79.4	75.0	76.8	69.0
30 - 34	85.5	79.7	52.5	75.3	78.2	74.0	75.9
35 - 39	74.4	83.5	78.0	51.5	74.0	77.1	73.0
40 - 44	52.0	72.2	81.4	76.2	50.5	72.6	75.7
45 - 49	49.8	50.0	69.7	78.7	74.0	49.1	70.8
50 - 54	46.7	47.0	47.4	66.3	75.1	70.8	47.1
55 - 59	45.4	42.9	43.4	43.9	61.7	70.1	66.3
60 - 64	39.8	40.0	38.1	38.7	39.3	55.4	63.2
65 - 69	34.2	33.1	33.5	32.0	32.7	33.4	47.3
70 - 74	22.0	26.1	25.4	25.9	25.0	25.7	26.4
75 - 79	15.3	14.7	17.6	17.3	17.8	17.3	17.9
80 - 84	6.14	8.27	7.99	9.64	7.57	9.93	9.72
85 +	3.03	3.30	4.33	4.55	5.41	5.69	6.03
0 - 14	245	232	217	195	179	167	155
20 - 34	221	211	210	231	231	221	207
35 - 44	126	156	159	128	123	150	149
45 - 64	182	180	199	228	250	245	247
15 - 64	609	629	645	665	676	679	662
65 +	80.7	85.5	88.8	89.4	90.5	92.0	107

## APPENDIX IV—LATVIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.13	5.89	4.83	8.83	6.34	5.12	7.51	5.49	4.55
5 - 9	7.79	6.27	5.31	8.46	6.73	5.62	7.20	5.85	5.02
10 - 14	8.23	7.00	5.67	8.89	7.51	6.00	7.65	6.55	5.37
15 - 19	7.84	7.74	6.00	9.49	8.30	6.32	7.26	7.24	5.70
20 - 24	5.49	7.48	6.40	5.85	8.01	6.73	5.14	7.00	6.08
25 - 29	9.30	7.85	7.11	8.70	8.36	7.47	7.94	7.39	6.77
30 - 34	8.66	7.43	7.92	9.15	7.93	8.22	8.23	6.98	7.45
35 - 39	7.98	5.18	7.53	7.97	5.42	7.90	7.99	4.96	7.18
40 - 44	6.50	7.79	7.47	5.57	9.02	8.29	7.33	7.58	7.56
45 - 49	5.84	8.03	7.36	5.33	9.29	7.67	6.29	7.79	7.08
50 - 54	5.47	7.22	5.03	5.00	6.98	5.10	5.88	7.44	4.96
55 - 59	5.14	5.68	7.27	4.86	4.62	7.18	5.39	6.64	7.36
60 - 64	4.62	4.79	7.02	4.26	4.08	6.84	4.94	5.43	7.19
65 - 69	3.93	4.06	5.75	3.66	3.37	5.12	4.17	4.68	6.33
70 - 74	2.72	3.25	3.93	2.76	2.73	2.86	3.04	3.73	4.94
75 - 79	2.00	2.29	2.60	1.64	1.82	1.94	2.32	2.72	3.23
80 - 84	0.87	1.31	1.50	0.66	1.02	1.05	1.05	1.57	1.92
85 +	0.49	0.72	1.00	0.32	0.48	0.65	0.64	0.94	1.32
0 - 14	24.15	19.17	15.81	26.18	20.58	16.74	22.36	17.89	14.94
20 - 34	22.45	22.76	21.32	23.71	24.30	22.42	21.35	21.37	20.30
35 - 44	14.48	12.97	15.40	13.53	13.45	16.10	15.32	12.53	14.74
45 - 64	21.07	25.72	26.68	19.45	23.97	26.79	22.50	27.31	26.59
15 - 64	65.84	69.20	69.41	65.18	70.01	71.64	66.42	68.46	67.32
65 +	10.01	11.64	14.78	8.64	9.41	11.62	11.22	13.65	17.74

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,060	1,060	1,060	1,050	1,040	1,020	988
0 - 4	79.3	70.8	62.5	57.7	54.0	50.0	45.0
5 - 9	76.1	77.5	69.4	61.5	57.0	53.4	49.6
10 - 14	80.8	75.3	76.8	68.8	61.1	56.6	53.1
15 - 19	76.7	79.9	74.5	76.1	68.3	60.7	56.3
20 - 24	54.7	75.5	78.8	73.6	75.3	67.6	60.1
25 - 29	83.9	53.8	74.4	77.7	72.7	74.4	66.8
30 - 34	86.9	82.4	52.9	73.3	76.6	71.8	73.6
35 - 39	84.4	85.3	81.0	52.1	72.2	75.7	71.0
40 - 44	77.4	82.6	83.6	79.6	51.3	71.2	74.7
45 - 49	66.5	75.5	80.7	81.9	78.0	59.3	70.0
50 - 54	62.1	64.2	73.0	78.2	79.5	75.8	49.0
55 - 59	56.9	59.2	61.3	69.8	74.7	76.1	72.7
60 - 64	52.2	52.8	55.1	57.1	65.1	69.8	71.1
65 - 69	44.1	46.5	47.1	49.2	51.0	58.3	62.6
70 - 74	32.1	36.5	38.6	39.2	41.0	42.6	49.8
75 - 79	24.5	23.6	26.9	28.6	29.1	30.6	31.9
80 - 84	11.1	14.9	14.4	16.5	17.6	18.1	19.0
85 +	6.71	7.26	9.39	9.90	11.2	12.3	13.0
0 - 14	236	223	209	188	172	160	148
20 - 34	226	212	206	225	225	214	201
35 - 44	162	168	165	132	124	147	146
45 - 64	238	252	270	287	297	272	263
15 - 64	702	711	715	719	714	693	665
65 +	119	129	136	143	150	162	175

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## APPENDIX IV—NORWAY

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,930	2,980	3,010	3,020	3,000	2,950	2,870
0 - 4	215	199	183	183	142	124	109
5 - 9	211	212	197	181	162	141	123
10 - 14	242	209	211	197	181	162	141
15 - 19	275	239	207	209	195	179	161
20 - 24	274	270	236	204	207	183	178
25 - 29	255	268	266	232	201	204	190
30 - 34	232	250	263	261	229	198	202
35 - 39	217	228	246	260	257	225	196
40 - 44	201	212	224	243	256	255	223
45 - 49	173	195	208	220	237	252	250
50 - 54	146	167	189	201	213	230	244
55 - 59	126	139	159	180	192	203	220
60 - 64	112	116	129	147	167	178	189
65 - 69	89.1	99.8	104	115	132	150	160
70 - 74	69.0	74.3	83.5	87.1	96.6	111	127
75 - 79	50.1	51.6	55.8	62.9	65.9	73.3	84.8
80 - 84	29.6	31.1	32.1	34.9	39.6	41.7	46.6
85 +	17.4	18.9	20.3	21.6	23.6	26.9	29.2
0 - 14	668	620	591	542	485	427	373
20 - 34	761	788	765	697	637	595	569
35 - 44	418	440	470	503	513	480	419
45 - 64	557	617	684	748	809	863	903
15 - 64	2,010	2,080	2,130	2,160	2,150	2,120	2,050
65 +	255	276	296	321	258	403	448

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,440	1,470	1,490	1,500	1,490	1,470	1,440
0 - 4	110	102	94.0	83.9	73.1	63.2	56.0
5 - 9	108	109	101	83.1	83.2	72.6	63.4
10 - 14	123	107	108	101	82.7	82.9	72.3
15 - 19	140	122	106	107	100	82.0	82.3
20 - 24	139	137	120	104	106	82.6	80.9
25 - 29	128	136	135	118	102	104	97.2
30 - 34	114	126	133	132	116	101	103
35 - 39	105	112	124	131	130	114	99.7
40 - 44	96.9	102	110	122	129	129	113
45 - 49	83.8	94.3	99.8	108	119	127	126
50 - 54	68.9	80.7	91.0	96.5	104	115	123
55 - 59	58.2	65.1	76.3	86.3	91.6	99.0	110
60 - 64	52.0	53.4	59.8	70.2	79.4	84.5	91.4
65 - 69	40.8	45.9	47.2	53.0	62.4	70.8	75.5
70 - 74	30.7	33.6	38.0	39.3	44.2	52.3	59.6
75 - 79	21.6	22.5	24.8	28.1	29.2	33.0	39.2
80 - 84	12.5	13.1	13.7	15.2	17.3	18.1	20.6
85 +	6.97	7.58	8.12	8.69	9.69	11.2	12.1
0 - 14	341	318	303	278	249	219	192
20 - 34	381	399	388	354	324	304	291
35 - 44	202	214	234	253	259	243	213
45 - 64	263	294	327	361	394	426	450
15 - 64	986	1,030	1,050	1,080	1,080	1,060	1,040
65 +	113	123	132	146	163	185	207

## APPENDIX IV—NORWAY

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	7.33	5.41	3.79	7.64	5.60	3.90	7.03	5.22	3.68
5 - 9	7.19	6.01	4.29	7.50	6.22	4.42	6.89	5.80	4.17
10 - 14	8.25	6.52	4.90	8.55	6.75	5.04	7.96	6.29	4.76
15 - 19	9.37	6.92	5.59	9.73	7.15	5.73	9.03	6.70	5.44
20 - 24	9.34	6.75	6.18	9.66	6.95	6.33	9.03	6.56	6.02
25 - 29	8.69	7.68	6.62	8.89	7.88	6.77	8.50	7.49	6.47
30 - 34	7.91	8.64	7.02	7.92	8.82	7.18	7.90	8.47	6.86
35 - 39	7.40	8.61	6.83	7.29	8.75	6.95	7.49	8.47	6.71
40 - 44	6.85	8.05	7.76	6.73	8.15	7.87	6.96	7.95	7.63
45 - 49	5.90	7.29	8.70	5.82	7.21	8.78	5.98	7.36	8.62
50 - 54	4.98	6.64	8.49	4.79	6.44	8.57	5.16	6.83	8.41
55 - 59	4.28	5.96	7.66	4.04	5.76	7.66	4.51	6.15	7.65
60 - 64	3.82	4.88	6.59	3.61	4.69	6.37	4.02	5.07	6.81
65 - 69	3.04	3.80	5.58	2.83	3.54	5.26	3.23	4.06	5.90
70 - 74	2.35	2.88	4.42	2.13	2.62	4.15	2.56	3.14	4.68
75 - 79	1.71	2.08	2.95	1.50	1.88	2.73	1.91	2.29	3.17
80 - 84	1.31	1.16	1.62	0.87	1.02	1.44	1.14	1.29	1.81
85 +	0.59	0.72	1.02	0.48	0.58	0.84	0.70	0.85	1.19
0 - 14	22.77	17.93	12.99	23.69	18.57	13.36	21.88	17.31	12.61
20 - 34	25.94	23.08	19.82	26.47	23.64	20.28	25.42	22.53	19.35
35 - 44	14.24	16.66	14.59	14.03	16.90	14.82	14.45	16.42	14.36
45 - 64	18.98	24.77	31.44	18.26	24.11	31.38	19.67	25.41	31.49
15 - 64	68.54	71.43	71.43	68.49	71.80	72.22	68.58	71.06	70.64
65 +	8.70	10.64	15.58	7.82	9.64	14.42	9.54	11.63	16.74

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,490	1,510	1,520	1,520	1,510	1,480	1,440
0 - 4	105	87.1	88.0	78.4	88.1	80.3	82.9
5 - 9	103	103	88.2	88.3	78.8	88.7	80.0
10 - 14	119	102	103	85.8	88.0	78.6	88.5
15 - 19	135	117	101	102	88.1	87.5	78.2
20 - 24	135	133	116	99.9	101	84.1	88.6
25 - 29	127	132	131	114	98.6	99.7	83.0
30 - 34	118	124	130	129	113	97.4	98.7
35 - 39	112	116	122	129	127	111	96.5
40 - 44	104	110	114	121	127	126	110
45 - 49	89.4	101	108	112	118	125	124
50 - 54	77.1	86.4	97.9	104	109	115	121
55 - 59	67.4	73.5	82.5	93.6	100	104	110
60 - 64	60.1	62.9	68.7	77.2	87.6	93.8	97.9
65 - 69	48.3	53.9	56.6	61.8	69.6	79.1	84.8
70 - 74	38.3	40.7	45.5	47.8	52.4	59.1	67.3
75 - 79	28.5	29.1	31.0	34.8	36.7	40.3	45.6
80 - 84	17.1	18.0	18.4	19.7	22.3	23.6	26.0
85 +	10.4	11.3	12.2	12.9	13.9	15.7	17.1
0 - 14	327	302	288	264	236	208	181
20 - 34	380	389	377	343	313	291	278
35 - 44	216	226	236	250	254	237	207
45 - 64	294	324	357	387	415	438	453
15 - 64	1,030	1,060	1,070	1,080	1,080	1,050	1,020
65 +	143	153	164	177	195	218	241

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## APPENDIX IV—SWEDEN

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	6,330	6,380	6,370	6,310	6,210	6,050	5,840
0 - 4	438	382	348	308	273	242	214
5 - 9	416	433	388	348	302	271	240
10 - 14	461	414	431	380	344	305	269
15 - 19	523	457	411	429	384	342	303
20 - 24	540	517	453	407	424	381	340
25 - 29	544	532	511	447	402	420	378
30 - 34	534	536	524	505	443	399	417
35 - 39	488	525	528	518	499	437	395
40 - 44	443	475	517	520	511	492	433
45 - 49	400	432	469	506	511	502	484
50 - 54	360	385	418	453	491	496	488
55 - 59	316	342	367	398	432	468	474
60 - 64	272	292	316	340	369	402	435
65 - 69	216	241	259	281	302	329	359
70 - 74	163	177	198	213	233	251	274
75 - 79	122	117	128	144	156	170	185
80 - 84	66.0	70.0	67.8	74.6	84.5	92.1	101
85 +	31.4	34.5	37.6	38.1	41.8	47.8	53.6
0 - 14	1,320	1,240	1,170	1,040	923	818	723
20 - 34	1,620	1,590	1,490	1,360	1,270	1,200	1,140
35 - 44	931	1,000	1,050	1,040	1,010	929	828
45 - 64	1,350	1,450	1,570	1,700	1,800	1,870	1,880
15 - 64	4,420	4,500	4,510	4,520	4,470	4,340	4,150
65 +	598	640	691	751	817	890	972

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,140	3,170	3,180	3,160	3,110	3,040	2,940
0 - 4	224	201	178	158	140	124	110
5 - 9	212	221	188	177	157	139	123
10 - 14	234	211	220	188	176	156	138
15 - 19	266	232	209	219	188	175	155
20 - 24	275	263	230	207	216	195	174
25 - 29	276	271	260	227	205	214	193
30 - 34	269	272	267	257	225	203	213
35 - 39	242	264	268	264	254	222	201
40 - 44	218	237	260	264	260	250	220
45 - 49	194	212	232	254	259	255	246
50 - 54	173	186	205	224	246	251	248
55 - 59	153	164	177	194	213	234	239
60 - 64	131	140	151	163	179	197	216
65 - 69	102	115	124	133	144	159	175
70 - 74	74.4	83.2	94.0	101	110	119	132
75 - 79	54.4	53.0	59.6	67.6	73.2	79.6	86.9
80 - 84	28.9	30.8	30.3	34.3	39.2	42.8	46.9
85 +	13.1	14.6	16.0	16.4	18.5	21.5	24.2
0 - 14	670	633	597	533	473	419	371
20 - 34	820	806	757	691	646	612	580
35 - 44	460	501	528	528	514	472	421
45 - 64	651	702	765	835	897	937	949
15 - 64	2,200	2,240	2,260	2,270	2,250	2,200	2,110
65 +	273	297	324	352	385	422	465

## APPENDIX IV—SWEDEN

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	6.92	4.88	3.66	7.13	5.00	3.74	6.70	4.75	3.58
5 - 9	6.57	5.48	4.11	6.75	5.60	4.18	6.39	5.35	4.03
10 - 14	7.28	6.13	4.60	7.45	6.27	4.69	7.11	5.99	4.52
15 - 19	8.26	6.79	5.19	8.47	6.93	5.27	8.05	6.65	5.10
20 - 24	8.53	6.45	5.82	8.76	6.55	5.92	8.30	6.34	5.72
25 - 29	8.59	7.08	6.47	8.79	7.19	6.56	8.39	6.97	6.38
30 - 34	8.43	8.00	7.14	8.57	8.14	7.24	8.30	7.86	7.03
35 - 39	7.71	8.20	6.76	7.71	8.36	6.83	7.71	8.05	6.69
40 - 44	7.00	8.23	7.41	6.94	8.36	7.48	7.05	8.11	7.34
45 - 49	6.32	8.01	8.28	6.18	8.04	8.36	6.45	7.98	8.20
50 - 54	5.68	7.17	8.35	5.51	7.09	8.43	5.86	7.25	8.27
55 - 59	4.99	6.30	8.11	4.87	6.14	8.13	5.11	6.46	8.10
60 - 64	4.30	5.38	7.45	4.17	5.16	7.34	4.42	5.61	7.55
65 - 69	3.41	4.45	6.14	3.25	4.21	5.95	3.57	4.69	6.34
70 - 74	2.57	3.37	4.69	2.37	3.20	4.49	2.76	3.55	4.89
75 - 79	1.92	2.28	3.16	1.75	2.14	2.95	2.10	2.42	3.36
80 - 84	1.04	1.18	1.73	0.92	1.09	1.59	1.16	1.28	1.87
85 +	0.50	0.60	0.92	0.42	0.52	0.82	0.57	0.69	1.01
0 - 14	20.77	16.49	12.38	21.34	16.88	12.61	20.20	16.09	12.13
20 - 34	25.55	21.52	19.43	26.12	21.88	19.72	24.99	21.16	19.13
35 - 44	14.70	16.44	14.17	14.65	16.72	14.31	14.75	16.16	14.03
45 - 64	21.29	26.87	32.20	20.73	26.44	32.27	21.83	27.31	32.12
15 - 64	69.80	71.63	70.98	69.97	71.97	71.57	69.63	71.28	70.38
65 +	9.44	11.89	16.64	8.69	11.15	15.81	10.17	12.62	17.49

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,190	3,210	3,190	3,160	3,100	3,010	2,900
0 - 4	214	191	170	150	133	118	104
5 - 9	204	212	190	188	149	132	117
10 - 14	227	203	211	189	148	149	131
15 - 19	257	225	202	210	189	187	148
20 - 24	265	254	223	200	208	188	188
25 - 29	268	261	251	220	197	206	185
30 - 34	265	264	257	248	218	196	204
35 - 39	246	261	260	254	245	215	194
40 - 44	225	242	257	256	251	242	213
45 - 49	206	220	237	252	252	247	238
50 - 54	187	199	213	229	245	245	240
55 - 59	163	178	190	204	219	234	235
60 - 64	141	152	165	177	190	205	219
65 - 69	114	126	135	148	158	170	184
70 - 74	88.1	93.8	104	112	123	132	142
75 - 79	67.2	64.1	68.5	76.5	82.8	90.7	97.6
80 - 84	37.1	39.2	37.5	40.3	45.3	49.3	54.3
85 +	18.3	19.9	21.6	21.7	23.3	26.3	29.4
0 - 14	645	606	571	508	450	399	352
20 - 34	798	779	731	668	623	588	555
35 - 44	471	503	517	510	496	457	407
45 - 64	697	749	805	862	906	931	932
15 - 64	2,220	2,260	2,260	2,250	2,210	2,140	2,040
65 +	325	343	367	399	432	468	507

## APPENDIX IV-- SOUTHERN AND EASTERN EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	165,000	172,000	177,000	183,000	187,000	190,000	192,000
0 - 4	17,300	18,000	18,300	14,800	14,400	13,500	12,400
5 - 9	17,500	16,500	15,400	14,800	14,500	14,000	13,200
10 - 14	17,300	17,200	16,300	16,200	14,800	14,400	13,800
15 - 19	15,500	17,100	17,000	16,100	15,000	14,500	14,200
20 - 24	12,700	15,200	16,800	16,700	15,900	14,800	14,300
25 - 29	14,300	12,400	14,900	16,400	16,400	15,600	14,800
30 - 34	13,200	13,900	12,100	14,500	16,100	16,100	15,300
35 - 39	11,500	12,900	13,600	11,800	14,200	15,800	15,700
40 - 44	9,530	11,100	12,500	13,200	11,500	13,900	15,400
45 - 49	8,180	9,110	10,700	12,000	12,700	11,200	13,500
50 - 54	7,130	7,740	8,650	10,200	11,500	12,200	10,700
55 - 59	6,210	6,590	7,190	8,040	9,470	10,700	11,400
60 - 64	5,030	5,530	5,900	6,450	7,250	8,550	9,730
65 - 69	3,970	4,220	4,660	5,000	5,500	6,220	7,360
70 - 74	2,870	3,020	3,240	3,600	3,890	4,310	4,900
75 - 79	1,770	1,870	1,990	2,160	2,420	2,640	2,940
80 - 84	760	886	951	1,030	1,140	1,290	1,420
85 +	310	335	396	444	497	560	643
0 - 14	52,100	49,800	47,000	44,900	43,500	41,900	39,500
20 - 34	40,200	41,500	43,700	47,700	48,300	46,500	44,200
35 - 44	21,000	24,000	26,000	25,000	25,700	29,600	31,100
45 - 64	26,600	29,000	32,400	36,700	40,900	42,600	45,300
15 - 64	103,000	112,000	119,000	125,000	130,000	133,000	135,000
65 +	9,670	10,300	11,200	12,200	13,400	15,000	17,300

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	81,300	84,800	87,800	90,700	93,100	94,900	95,900
0 - 4	8,800	8,180	7,830	7,830	7,330	6,800	6,360
5 - 9	8,910	8,400	7,830	7,540	7,400	7,150	6,780
10 - 14	8,820	8,780	8,310	7,750	7,480	7,330	7,080
15 - 19	7,890	8,710	8,670	8,200	7,650	7,380	7,280
20 - 24	6,400	7,730	8,530	8,530	8,080	7,540	7,280
25 - 29	7,110	6,260	7,570	8,370	8,370	7,930	7,440
30 - 34	6,590	6,930	6,120	7,400	8,210	8,220	7,810
35 - 39	5,590	6,410	6,750	5,970	7,260	8,060	7,970
40 - 44	4,510	5,390	6,200	6,560	5,820	7,070	7,870
45 - 49	3,780	4,290	5,160	5,950	6,320	5,610	6,850
50 - 54	3,280	3,540	4,040	4,860	5,640	6,000	5,350
55 - 59	2,870	3,000	3,250	3,720	4,490	5,230	5,580
60 - 64	2,330	2,510	2,640	2,870	3,310	4,000	4,690
65 - 69	1,830	1,920	2,080	2,200	2,400	2,780	3,380
70 - 74	1,320	1,360	1,440	1,570	1,670	1,850	2,150
75 - 79	804	833	873	934	1,030	1,110	1,230
80 - 84	335	383	404	433	474	530	578
85 +	127	134	154	169	187	209	237
0 - 14	26,500	25,400	24,000	22,900	22,200	21,400	20,200
20 - 34	20,100	20,900	22,200	24,300	24,700	25,700	22,500
35 - 44	10,100	11,800	13,000	12,500	13,100	15,100	15,800
45 - 64	12,300	13,300	15,100	17,400	19,800	20,800	22,500
15 - 64	50,400	54,800	58,900	62,400	65,100	67,000	68,100
65 +	4,420	4,630	4,950	5,300	5,770	6,480	7,580

## APPENDIX IV— SOUTHERN AND EASTERN EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	10.47	8.18	6.47	10.82	8.42	6.62	10.13	7.94	6.33
5 - 9	10.60	8.10	6.88	10.96	8.32	7.02	10.25	7.89	6.73
10 - 14	10.50	8.33	7.25	10.84	8.55	7.39	10.16	8.11	7.10
15 - 19	9.39	8.81	7.43	9.71	9.04	7.58	9.08	8.49	7.28
20 - 24	7.69	9.16	7.46	7.87	9.41	7.61	7.51	9.91	7.32
25 - 29	8.66	8.99	7.61	8.75	9.23	7.76	8.57	8.76	7.45
30 - 34	8.02	7.96	7.98	8.11	8.17	8.15	7.43	7.76	7.82
35 - 39	6.97	6.47	8.20	6.87	6.58	8.32	7.06	6.36	8.08
40 - 44	5.77	7.22	8.06	5.55	7.23	8.21	5.98	7.20	7.90
45 - 49	4.96	6.58	7.04	4.65	6.57	7.14	5.25	6.60	6.93
50 - 54	4.31	5.56	5.58	4.04	5.36	5.58	4.59	5.75	5.57
55 - 59	3.76	4.41	5.96	3.53	4.10	5.82	3.99	4.70	6.10
60 - 64	3.05	3.53	5.08	2.87	3.17	4.89	3.22	3.89	5.26
65 - 69	2.41	2.74	3.84	2.26	2.42	3.53	2.55	3.05	4.15
70 - 74	1.74	1.97	2.56	1.62	1.73	2.24	1.85	2.21	2.88
75 - 79	1.07	1.18	1.54	0.99	1.03	1.28	1.16	1.33	1.79
80 - 84	0.46	0.57	0.74	0.41	0.48	0.60	0.51	0.65	0.88
85 +	0.19	0.24	0.34	0.16	0.19	0.25	0.22	0.30	0.42
0 - 14	31.57	24.61	20.60	32.63	25.28	21.04	30.54	23.94	20.15
20 - 34	24.37	26.11	23.06	24.73	26.81	23.51	24.01	25.43	22.60
35 - 44	12.73	13.69	16.25	12.42	13.81	16.53	13.04	13.56	15.98
45 - 64	16.08	20.08	23.65	15.08	19.20	23.43	17.05	20.94	23.87
15 - 64	62.57	68.69	70.39	61.94	68.87	71.06	63.18	68.52	69.72
65 +	5.87	6.70	9.01	5.44	5.85	7.91	6.28	7.54	10.12

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	83,800	86,900	89,600	91,900	93,900	95,200	95,700
0 - 4	8,490	7,800	7,500	7,300	7,020	6,580	6,000
5 - 9	8,600	8,100	7,550	7,200	7,100	6,860	6,440
10 - 14	8,520	8,460	7,900	7,450	7,170	7,040	6,790
15 - 19	7,620	8,390	8,360	7,900	7,300	7,110	6,370
20 - 24	6,300	7,460	8,230	8,190	7,780	7,280	7,010
25 - 29	7,190	6,140	7,290	8,050	8,040	7,640	7,140
30 - 34	6,650	7,000	6,000	7,140	7,890	7,890	7,490
35 - 39	5,920	6,460	6,820	5,850	6,970	7,710	7,730
40 - 44	5,020	5,720	6,260	6,620	5,710	6,810	7,560
45 - 49	4,410	4,820	5,530	6,070	6,430	5,540	6,630
50 - 54	3,840	4,200	4,610	5,290	5,820	6,170	5,340
55 - 59	3,340	3,590	3,940	4,320	4,970	5,490	5,840
60 - 64	2,700	3,020	3,250	3,580	3,950	4,550	5,040
65 - 69	2,140	2,300	2,580	2,800	3,090	3,430	3,980
70 - 74	1,550	1,660	1,800	2,030	2,220	2,470	2,750
75 - 79	969	1,040	1,120	1,220	1,390	1,530	1,710
80 - 84	425	504	547	599	662	755	842
85 +	183	201	242	275	310	351	406
0 - 14	25,600	24,400	23,000	22,000	21,300	20,500	19,300
20 - 34	20,100	20,600	21,500	23,400	23,700	22,800	21,600
35 - 44	10,900	12,200	13,100	12,500	12,700	14,500	15,300
45 - 64	14,300	15,600	17,300	19,300	21,200	21,800	22,800
15 - 64	53,000	56,800	60,300	63,000	64,900	66,200	66,700
65 +	5,270	5,700	6,290	6,930	7,670	8,540	9,690

Notes on page 314.

## APPENDIX IV—SOUTHERN EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	77,500	80,100	82,300	84,100	85,500	86,300	86,500
0 - 4	7,430	6,880	6,480	6,210	6,010	5,490	4,880
5 - 9	7,690	7,140	6,630	6,300	6,060	5,800	5,390
10 - 14	7,630	7,600	7,090	6,590	6,250	6,020	5,780
15 - 19	7,000	7,550	7,530	7,020	6,680	6,200	5,980
20 - 24	6,040	6,880	7,430	7,420	6,940	6,480	6,140
25 - 29	6,640	5,930	6,770	7,310	7,320	6,860	6,380
30 - 34	6,050	6,510	5,830	6,660	7,210	7,240	6,760
35 - 39	5,290	5,970	6,380	5,710	6,550	7,100	7,130
40 - 44	4,620	5,140	5,780	6,240	5,610	6,440	7,000
45 - 49	4,070	4,150	5,000	5,630	6,090	5,470	6,290
50 - 54	3,630	3,900	4,270	4,790	5,400	5,860	5,280
55 - 59	3,700	3,400	3,670	4,020	4,510	5,110	5,560
60 - 64	2,730	2,900	3,100	3,340	3,680	4,130	4,700
65 - 69	2,180	2,340	2,500	2,680	2,900	3,210	3,620
70 - 74	1,600	1,710	1,850	1,990	2,150	2,340	2,590
75 - 79	1,030	1,080	1,160	1,270	1,380	1,500	1,640
80 - 84	459	534	572	625	691	758	831
85 +	193	214	253	284	319	361	405
0 - 14	22,700	21,600	20,300	19,100	18,200	17,300	16,100
20 - 34	18,700	19,300	20,000	21,400	21,500	20,500	19,700
35 - 44	9,900	11,100	12,200	12,000	12,200	13,500	14,100
45 - 64	13,600	14,600	16,000	17,800	19,700	20,600	21,800
15 - 64	49,300	52,600	55,800	58,100	59,800	60,800	61,200
65 +	5,460	5,880	6,340	6,830	7,440	8,170	9,090

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	38,000	39,400	40,500	41,500	42,300	42,800	43,000
0 - 4	3,790	3,500	3,310	3,180	3,080	2,820	2,550
5 - 9	3,920	3,640	3,380	3,210	3,080	2,860	2,780
10 - 14	3,890	3,880	3,620	3,380	3,180	3,070	2,840
15 - 19	3,570	3,850	3,830	3,570	3,320	3,150	3,050
20 - 24	3,050	3,500	3,790	3,790	3,540	3,280	3,180
25 - 29	3,330	3,000	3,440	3,730	3,730	3,490	3,880
30 - 34	3,000	3,260	2,950	3,390	3,670	3,690	3,440
35 - 39	2,540	2,940	3,190	2,890	3,330	3,620	3,630
40 - 44	2,160	2,470	2,860	3,110	2,820	3,260	3,550
45 - 49	1,870	2,070	2,380	2,760	3,030	2,740	3,180
50 - 54	1,670	1,770	1,970	2,270	2,640	2,900	2,640
55 - 59	1,480	1,550	1,650	1,840	2,120	2,480	2,730
60 - 64	1,260	1,320	1,390	1,480	1,660	1,920	2,260
65 - 69	1,000	1,060	1,120	1,180	1,260	1,420	1,650
70 - 74	728	767	817	865	921	994	1,120
75 - 79	455	474	506	545	582	625	679
80 - 84	197	274	237	259	285	309	335
85 +	74.3	80.6	92.9	103	115	130	144
0 - 14	11,600	11,000	10,300	9,740	9,300	8,840	8,240
20 - 34	9,330	9,770	10,200	10,900	10,900	10,500	9,830
35 - 44	4,710	5,400	6,050	6,000	6,150	6,880	7,180
45 - 64	6,290	6,720	7,390	8,350	9,430	10,000	10,800
15 - 64	23,900	25,700	27,500	28,800	29,900	30,500	30,900
65 +	2,460	2,610	2,770	2,950	3,170	3,480	3,930

## APPENDIX IV — SOUTHERN EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	9.59	7.39	5.77	9.97	7.65	5.93	9.23	7.13	5.61
5 - 9	9.91	7.49	6.23	10.32	7.73	6.39	9.55	7.25	6.08
10 - 14	9.85	7.83	6.66	10.23	8.08	6.83	9.47	7.59	6.49
15 - 19	9.04	8.15	6.92	9.39	8.60	7.09	8.70	8.10	6.75
20 - 24	7.79	8.83	7.10	8.03	9.12	7.27	7.56	8.54	6.93
25 - 29	8.57	8.70	7.39	8.76	8.99	7.56	8.38	8.42	7.21
30 - 34	7.81	7.92	7.82	7.89	8.16	8.00	7.73	7.70	7.65
35 - 39	6.83	6.80	8.24	6.69	6.95	8.43	6.96	6.64	8.06
40 - 44	5.96	7.42	8.09	5.69	7.49	8.25	6.21	7.35	7.94
45 - 49	5.26	6.69	7.28	4.92	6.65	7.39	5.58	6.73	7.17
50 - 54	4.68	5.69	6.11	4.40	5.46	6.13	4.95	5.92	6.08
55 - 59	4.13	4.78	6.43	3.90	4.43	6.35	4.36	5.12	6.52
60 - 64	3.52	3.97	5.43	3.33	3.57	5.24	3.70	4.36	5.62
65 - 69	2.81	3.19	4.19	2.64	2.84	3.83	2.97	3.53	4.34
70 - 74	2.07	2.36	3.00	1.92	2.08	2.61	2.22	2.64	3.38
75 - 79	1.32	1.51	1.90	1.20	1.31	1.58	1.45	1.70	2.22
80 - 84	0.59	0.74	0.96	0.52	0.62	0.78	0.67	0.86	1.14
85 +	0.25	0.34	0.47	0.20	0.25	0.33	0.30	0.43	0.60
0 - 14	29.36	22.71	18.66	30.52	23.46	19.15	28.23	21.97	18.19
15 - 24	24.11	25.45	22.31	24.68	26.27	22.84	23.67	24.65	21.79
25 - 44	12.79	14.21	16.34	12.39	14.45	16.68	13.17	13.99	16.00
45 - 64	17.59	21.14	25.25	16.55	20.12	25.11	18.60	22.13	25.38
65 - 84	63.59	60.15	70.82	63.01	69.43	71.72	64.14	68.87	69.92
85 +	7.05	8.14	10.52	6.47	7.11	9.13	7.61	9.16	11.89

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	39,500	40,700	41,800	42,600	43,200	43,500	43,400
0 - 4	3,640	3,360	3,170	3,040	2,880	2,880	2,440
5 - 9	3,770	3,500	3,280	3,090	2,970	2,840	2,640
10 - 14	3,740	3,720	3,470	3,230	3,070	2,880	2,820
15 - 19	3,440	3,700	3,700	3,450	3,300	3,040	2,830
20 - 24	2,980	3,380	3,640	3,630	3,400	3,170	3,010
25 - 29	3,310	2,930	3,320	3,580	3,590	3,370	3,130
30 - 34	3,050	3,250	2,880	3,280	3,540	3,550	3,320
35 - 39	2,750	3,000	3,190	2,830	3,220	3,480	3,500
40 - 44	2,450	2,680	2,930	3,130	2,790	3,170	3,450
45 - 49	2,200	2,380	2,610	2,860	3,060	2,730	3,110
50 - 54	1,960	2,120	2,300	2,520	2,760	2,960	2,640
55 - 59	1,720	1,850	2,020	2,180	2,390	2,630	2,830
60 - 64	1,460	1,580	1,710	1,860	2,020	2,210	2,440
65 - 69	1,170	1,280	1,380	1,500	1,640	1,790	1,970
70 - 74	877	942	1,030	1,120	1,430	1,340	1,470
75 - 79	571	608	659	725	796	873	963
80 - 84	263	311	335	366	407	449	496
85 +	119	133	160	181	204	232	261
0 - 14	11,100	10,600	9,900	9,350	8,920	8,470	7,900
15 - 24	9,340	9,560	9,840	10,500	10,500	10,100	9,460
25 - 44	5,200	5,670	6,120	5,960	6,010	6,660	6,930
45 - 64	7,340	7,930	8,640	9,420	10,200	10,500	11,000
65 - 84	25,300	26,900	28,300	29,300	30,000	30,300	30,400
85 +	3,000	3,270	3,570	3,900	4,270	4,690	5,160



## APPENDIX IV—ITALY

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	44,200	45,700	47,000	48,100	48,900	49,400	49,500
0 - 4	4,180	3,800	3,600	3,520	3,350	3,120	2,840
5 - 9	4,250	4,040	3,780	3,600	3,460	3,300	3,070
10 - 14	4,360	4,210	4,010	3,700	3,580	3,440	3,280
15 - 19	4,010	4,320	4,180	3,980	3,720	3,550	3,420
20 - 24	3,330	3,950	4,260	4,130	3,940	3,680	3,520
25 - 29	3,820	3,280	3,890	4,200	4,080	3,900	3,660
30 - 34	3,460	3,760	3,230	3,840	4,150	4,040	3,860
35 - 39	2,980	3,400	3,690	3,170	3,780	4,090	3,980
40 - 44	2,640	2,900	3,320	3,610	3,120	3,720	4,040
45 - 49	2,320	2,550	2,830	3,240	3,540	3,050	3,650
50 - 54	2,110	2,230	2,460	2,720	3,120	3,410	2,950
55 - 59	1,860	1,990	2,110	2,320	2,570	2,960	3,250
60 - 64	1,570	1,700	1,820	1,930	2,130	2,360	2,730
65 - 69	1,280	1,360	1,470	1,590	1,690	1,880	2,080
70 - 74	966	1,010	1,080	1,180	1,280	1,370	1,520
75 - 79	637	654	690	744	818	892	960
80 - 84	302	330	344	370	404	449	495
85 +	119	132	148	160	176	197	222
0 - 14	12,800	12,100	11,500	10,900	10,400	9,860	9,190
20 - 34	10,600	11,000	11,400	12,200	12,200	11,600	11,000
35 - 44	5,620	6,300	7,010	6,780	6,900	7,810	8,020
45 - 64	7,860	8,460	9,220	10,200	11,400	11,800	12,600
15 - 64	28,100	30,100	31,800	33,100	34,200	34,800	35,100
65 +	3,300	3,480	3,730	4,040	4,360	4,780	5,280

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	21,700	22,500	23,200	23,800	24,300	24,600	24,700
0 - 4	2,130	1,880	1,880	1,800	1,710	1,580	1,480
5 - 9	2,160	2,050	1,920	1,830	1,760	1,680	1,580
10 - 14	2,210	2,140	2,040	1,910	1,830	1,780	1,670
15 - 19	2,030	2,190	2,120	2,020	1,890	1,800	1,740
20 - 24	1,680	2,000	2,160	2,100	2,000	1,870	1,790
25 - 29	1,920	1,660	1,970	2,130	2,070	1,980	1,880
30 - 34	1,720	1,890	1,630	1,940	2,100	2,050	1,960
35 - 39	1,450	1,690	1,850	1,600	1,910	2,070	2,020
40 - 44	1,240	1,410	1,650	1,810	1,570	1,880	2,040
45 - 49	1,060	1,190	1,370	1,600	1,770	1,530	1,840
50 - 54	972	1,010	1,140	1,310	1,540	1,700	1,480
55 - 59	871	907	947	1,070	1,230	1,450	1,610
60 - 64	749	785	821	860	975	1,120	1,330
65 - 69	610	638	672	705	742	845	974
70 - 74	457	474	499	529	559	592	674
75 - 79	298	303	318	339	362	384	409
80 - 84	136	148	153	165	179	194	208
85 +	49.3	54.0	59.8	64.1	70.3	77.5	85.2
0 - 14	6,500	6,170	5,840	5,540	5,290	5,020	4,680
20 - 34	5,320	5,550	5,760	6,170	6,170	5,900	5,610
35 - 44	2,690	3,100	3,500	3,410	3,480	3,950	4,060
45 - 64	3,650	3,890	4,280	4,840	5,510	5,805	6,260
15 - 64	13,700	14,700	15,700	16,400	17,100	17,500	17,700
65 +	1,550	1,620	1,700	1,800	1,910	2,090	2,350

## APPENDIX IV—ITALY

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	9.46	7.34	5.73	9.80	7.57	5.87	9.13	7.12	5.60
5 - 9	9.62	7.49	6.20	9.93	7.69	6.32	9.31	7.29	6.08
10 - 14	9.86	7.82	6.62	10.16	8.03	6.76	9.57	7.62	6.48
15 - 19	9.07	8.28	6.91	9.34	8.49	7.04	8.82	8.07	6.77
20 - 24	7.53	8.59	7.11	7.73	8.83	7.25	7.35	8.36	6.97
25 - 29	8.64	8.74	7.39	8.83	8.96	7.53	8.46	8.52	7.25
30 - 34	7.83	7.99	7.79	7.91	8.16	7.94	7.75	7.82	7.65
35 - 39	6.74	6.59	8.04	6.67	6.73	8.18	6.81	6.46	7.89
40 - 44	5.97	7.51	8.16	5.70	7.61	8.26	6.23	7.41	8.06
45 - 49	5.25	6.74	7.37	4.88	6.73	7.45	5.61	6.75	7.29
50 - 54	4.78	5.66	5.96	4.47	5.51	5.99	5.08	5.81	5.92
55 - 59	4.21	4.83	6.56	4.01	4.50	6.52	4.40	5.15	6.61
60 - 64	3.56	4.02	5.51	3.44	3.62	5.38	3.67	4.41	5.64
65 - 69	2.90	3.30	4.21	2.81	2.96	3.94	2.98	3.63	4.47
70 - 74	2.12	2.45	3.06	2.10	2.22	2.73	2.27	2.67	3.40
75 - 79	1.44	1.55	1.94	1.37	1.43	1.66	1.51	1.67	2.22
80 - 84	0.68	0.77	1.00	0.63	0.69	0.84	0.74	0.84	1.16
85 +	0.27	0.33	0.45	0.23	0.27	0.34	0.31	0.40	0.55
0 - 14	28.94	22.66	18.55	29.90	23.29	18.95	28.01	22.03	18.16
20 - 34	24.01	25.32	22.29	24.47	25.94	22.71	23.56	24.71	21.87
35 - 44	12.72	14.10	16.19	12.37	14.34	16.44	13.05	13.88	15.95
45 - 64	17.79	21.24	25.40	16.80	20.35	25.34	18.76	22.11	25.45
15 - 64	63.59	68.94	70.79	62.97	69.13	71.54	64.18	68.76	70.04
65 +	7.47	8.40	10.66	7.13	7.58	9.51	7.81	9.21	11.80

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	22,500	23,200	23,800	24,300	24,700	24,800	24,800
0 - 4	2,050	1,810	1,810	1,780	1,680	1,530	1,380
5 - 9	2,090	1,990	1,880	1,770	1,700	1,620	1,510
10 - 14	2,150	2,070	1,970	1,850	1,780	1,680	1,610
15 - 19	1,980	2,130	2,060	1,960	1,830	1,750	1,680
20 - 24	1,650	1,950	2,100	2,030	1,940	1,820	1,730
25 - 29	1,900	1,620	1,920	2,070	2,010	1,920	1,800
30 - 34	1,740	1,870	1,600	1,900	2,050	1,990	1,900
35 - 39	1,530	1,710	1,840	1,570	1,870	2,020	1,960
40 - 44	1,400	1,490	1,670	1,800	1,550	1,840	2,080
45 - 49	1,260	1,360	1,460	1,640	1,770	1,520	1,810
50 - 54	1,140	1,220	1,320	1,410	1,580	1,710	1,470
55 - 59	989	1,080	1,160	1,250	1,340	1,510	1,640
60 - 64	823	911	1,000	1,070	1,160	1,240	1,400
65 - 69	670	720	800	882	946	1,030	1,110
70 - 74	509	536	580	648	718	774	844
75 - 79	339	351	372	405	456	508	551
80 - 84	166	182	191	205	225	255	287
85 +	69.3	78.0	88.1	96.2	106	119	137
0 - 14	6,290	5,970	5,640	5,350	5,100	4,840	4,510
20 - 34	5,290	5,440	5,620	6,000	6,000	5,730	5,430
35 - 44	2,930	3,200	3,510	3,370	3,420	3,860	3,960
45 - 64	4,210	4,570	4,940	5,370	5,850	5,980	6,320
15 - 64	14,400	15,300	16,100	16,700	17,100	17,300	17,400
65 +	1,750	1,870	2,030	2,240	2,450	2,690	2,930

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## APPENDIX IV—PORTUGAL

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,620	7,980	8,290	8,550	8,780	8,960	9,090
0 - 4	840	722	727	697	672	640	587
5 - 9	790	803	742	702	677	656	627
10 - 14	727	782	796	736	698	673	653
15 - 19	723	718	774	788	720	682	688
20 - 24	635	710	706	763	777	721	685
25 - 29	645	621	696	694	750	765	711
30 - 34	581	630	607	683	681	738	754
35 - 39	490	565	614	593	669	669	726
40 - 44	411	476	549	599	580	655	656
45 - 49	377	395	460	532	582	565	639
50 - 54	340	360	378	440	511	560	544
55 - 59	297	318	339	357	416	484	531
60 - 64	263	270	292	310	327	383	447
65 - 69	202	228	235	254	271	287	337
70 - 74	151	160	182	189	204	219	233
75 - 79	87.1	103	110	126	132	144	155
80 - 84	42.3	46.0	55.0	59.5	69.3	73.1	80.6
85 +	18.5	20.6	23.0	27.9	31.6	37.4	41.1
0 - 14	2,360	2,360	2,270	2,140	2,050	1,970	1,880
20 - 34	1,860	1,960	2,010	2,140	2,210	2,220	2,150
35 - 44	901	1,040	1,160	1,190	1,250	1,320	1,380
45 - 64	1,280	1,340	1,470	1,640	1,840	1,990	2,160
15 - 64	4,760	5,060	5,420	5,760	6,020	6,230	6,360
65 +	500	557	605	656	708	761	847

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,670	3,860	4,030	4,180	4,300	4,410	4,490
0 - 4	429	385	372	357	344	328	308
5 - 9	402	410	379	369	348	336	321
10 - 14	368	398	406	376	357	344	334
15 - 19	368	363	394	402	373	354	342
20 - 24	322	361	357	388	396	388	350
25 - 29	318	315	354	351	381	390	383
30 - 34	279	310	307	347	344	375	384
35 - 39	225	270	301	299	339	337	368
40 - 44	187	217	261	292	291	330	329
45 - 49	172	178	208	251	282	282	321
50 - 54	152	162	168	197	239	269	270
55 - 59	131	140	150	157	184	224	253
60 - 64	115	117	126	135	141	167	204
65 - 69	86.6	96.8	99.0	107	115	121	144
70 - 74	62.1	65.8	74.3	76.5	83.3	90.4	95.9
75 - 79	34.2	40.3	43.2	49.3	51.3	56.5	61.8
80 - 84	15.6	16.9	20.2	22.1	25.8	27.3	30.3
85 +	6.34	6.87	7.63	9.27	10.7	12.8	14.1
0 - 14	1,200	1,200	1,160	1,090	1,050	1,010	961
20 - 34	919	986	1,020	1,090	1,120	1,130	1,100
35 - 44	412	487	562	591	630	667	697
45 - 64	570	597	652	740	846	942	1,050
15 - 64	2,270	2,430	2,630	2,820	2,970	3,100	3,180
65 +	205	227	244	254	286	308	346

## APPENDIX IV—PORTUGAL

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	11.02	8.15	6.57	11.68	8.55	6.81	10.41	7.77	6.33
5 - 9	10.37	8.21	6.90	10.95	8.60	7.15	9.83	7.84	6.66
10 - 14	9.54	8.61	7.19	10.02	9.01	7.44	9.10	8.23	6.94
15 - 19	9.49	9.22	7.36	10.02	9.63	7.62	9.00	8.82	7.12
20 - 24	8.33	8.92	7.54	8.77	9.29	7.79	7.93	8.57	7.29
25 - 29	8.47	8.12	7.83	8.66	8.41	8.08	8.29	7.84	7.57
30 - 34	7.63	7.99	8.30	7.60	8.31	8.55	7.65	7.68	8.05
35 - 39	6.43	6.94	7.99	6.13	7.16	8.19	6.71	6.72	7.79
40 - 44	5.39	7.01	7.22	5.09	6.99	7.33	5.68	7.02	7.12
45 - 49	4.95	6.22	7.03	4.68	6.01	7.15	5.19	6.42	6.92
50 - 54	4.46	5.15	5.99	4.14	4.72	6.01	4.76	5.55	5.96
55 - 59	3.90	4.18	5.84	3.57	3.76	5.63	4.21	4.57	6.05
60 - 64	3.45	3.63	4.92	3.13	3.23	4.54	3.75	4.00	5.29
65 - 69	2.65	2.97	3.71	2.36	2.56	3.21	2.91	3.36	4.20
70 - 74	1.98	2.20	2.56	1.69	1.83	2.14	2.25	2.56	2.98
75 - 79	1.14	1.47	1.71	0.93	1.18	1.38	1.34	1.76	2.03
80 - 84	0.56	0.70	0.89	0.42	0.53	0.67	0.68	0.85	1.09
85 +	0.24	0.33	0.45	0.17	0.22	0.31	0.31	0.43	0.59
0 - 14	30.93	24.97	20.66	32.65	26.15	21.40	29.34	23.84	19.94
20 - 34	24.43	25.03	23.66	25.02	26.01	24.43	23.87	24.09	22.92
35 - 44	11.83	13.94	15.21	11.22	14.16	15.52	12.39	13.74	14.91
45 - 64	16.76	19.17	23.78	15.52	17.72	23.34	17.92	20.55	24.22
15 - 64	62.50	67.36	70.02	61.78	67.52	70.90	63.17	67.20	69.17
65 +	6.57	7.67	9.32	5.58	6.33	7.71	7.49	8.96	10.90

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,950	4,110	4,260	4,370	4,470	4,550	4,590
0 - 4	411	377	355	340	328	312	291
5 - 9	388	393	369	343	331	320	306
10 - 14	359	384	390	360	341	329	319
15 - 19	355	355	380	386	352	338	327
20 - 24	313	349	349	375	381	353	336
25 - 29	327	306	342	343	369	375	348
30 - 34	302	320	300	336	337	363	370
35 - 39	265	295	313	294	330	332	358
40 - 44	224	259	288	307	289	325	327
45 - 49	205	217	252	281	300	283	318
50 - 54	188	198	210	243	272	291	274
55 - 59	166	178	189	200	232	260	278
60 - 64	148	153	166	175	186	216	243
65 - 69	115	131	136	147	156	166	193
70 - 74	88.6	93.8	108	112	121	129	137
75 - 79	52.9	62.5	66.6	76.8	80.2	87.6	93.5
80 - 84	26.7	29.1	34.8	37.4	43.5	45.8	50.3
85 +	12.2	13.7	15.4	18.6	20.9	24.6	27.0
0 - 14	1,160	1,150	1,110	1,040	1,000	961	916
20 - 34	942	975	991	1,050	1,090	1,090	1,050
35 - 44	489	554	601	601	619	657	685
45 - 64	707	746	817	899	990	1,050	1,110
15 - 64	2,490	2,630	2,790	2,940	3,050	3,140	3,180
65 +	295	330	361	392	422	453	501

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## APPENDIX IV—SPAIN

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	25,600	26,400	27,000	27,500	27,800	28,000	27,800
0 - 4	2,410	2,180	2,070	1,880	1,880	1,730	1,550
5 - 9	2,650	2,300	2,110	1,990	1,830	1,840	1,690
10 - 14	2,540	2,610	2,280	2,080	1,880	1,810	1,830
15 - 19	2,270	2,510	2,580	2,250	2,070	1,890	1,900
20 - 24	2,070	2,220	2,460	2,530	2,220	2,040	1,940
25 - 29	2,170	2,030	2,180	2,420	2,490	2,190	2,010
30 - 34	2,010	2,120	1,990	2,140	2,380	2,460	2,150
35 - 39	1,820	1,970	2,080	1,950	2,100	2,340	2,420
40 - 44	1,560	1,770	1,920	2,030	1,910	2,060	2,300
45 - 49	1,380	1,510	1,700	1,850	1,970	1,860	2,000
50 - 54	1,780	1,310	1,430	1,630	1,770	1,890	1,780
55 - 59	1,050	1,100	1,220	1,340	1,530	1,670	1,780
60 - 64	891	935	984	1,100	1,220	1,390	1,520
65 - 69	696	752	793	840	945	1,050	1,200
70 - 74	488	539	587	623	665	753	841
75 - 79	302	326	365	400	429	461	526
80 - 84	115	158	173	196	218	236	256
85 +	55.8	61.1	82.1	95.8	111	127	142
0 - 14	7,600	7,100	6,460	6,070	5,790	5,480	5,010
20 - 34	6,250	6,370	6,630	7,090	7,090	6,690	6,100
35 - 44	3,380	3,730	4,000	3,980	4,010	4,400	4,720
45 - 64	4,490	4,840	5,340	5,930	6,480	6,800	7,090
15 - 64	16,400	17,500	18,500	19,200	19,700	19,800	19,800
65 +	1,660	1,840	2,000	2,150	2,370	2,630	2,970

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	12,600	13,000	13,300	13,600	13,800	13,900	13,800
0 - 4	1,230	1,180	1,060	1,080	887	887	785
5 - 9	1,360	1,180	1,080	1,080	888	843	888
10 - 14	1,310	1,340	1,170	1,070	1,010	978	886
15 - 19	1,170	1,300	1,320	1,150	1,080	1,000	890
20 - 24	1,050	1,140	1,270	1,300	1,140	1,040	990
25 - 29	1,090	1,030	1,120	1,250	1,280	1,120	1,080
30 - 34	1,000	1,060	1,010	1,100	1,230	1,260	1,100
35 - 39	869	977	1,040	987	1,080	1,210	1,240
40 - 44	737	840	947	1,010	962	1,050	1,180
45 - 49	639	704	805	911	976	931	1,020
50 - 54	549	600	663	761	864	930	889
55 - 59	479	503	552	613	706	805	868
60 - 64	400	419	443	488	545	631	722
65 - 69	307	327	345	367	407	457	532
70 - 74	209	227	244	259	279	312	353
75 - 79	123	131	145	157	169	184	208
80 - 84	45.0	58.8	64.0	71.7	79.9	87.7	96.7
85 +	18.7	19.7	25.5	29.2	34.1	39.4	44.6
0 - 14	3,900	3,640	3,310	3,110	2,960	2,810	2,600
20 - 34	3,140	3,230	3,400	3,650	3,650	3,420	3,120
35 - 44	1,610	1,820	1,990	2,000	2,040	2,260	2,420
45 - 64	2,070	2,230	2,460	2,770	3,090	3,300	3,500
15 - 64	7,980	8,570	9,170	9,570	9,840	9,980	10,000
65 +	703	764	823	884	969	1,080	1,230

## APPENDIX IV—SPAIN

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	9.40	7.23	5.56	9.77	7.52	5.74	9.03	6.95	5.39
5 - 9	10.13	7.26	6.08	10.81	7.52	6.27	9.88	7.00	5.90
10 - 14	9.90	7.61	6.56	10.41	7.89	6.76	9.42	7.33	6.37
15 - 19	8.85	8.19	6.81	9.30	8.48	7.01	8.42	7.91	6.61
20 - 24	8.07	9.21	6.95	8.34	9.58	7.15	7.81	8.84	6.75
25 - 29	8.46	8.81	7.24	8.66	9.22	7.44	8.27	8.41	7.03
30 - 34	7.84	7.79	7.72	7.95	8.11	7.95	7.73	7.48	7.50
35 - 39	7.09	7.10	8.69	6.90	7.28	8.96	7.27	6.93	8.43
40 - 44	6.10	7.39	8.26	5.86	7.45	8.52	6.33	7.33	8.00
45 - 49	5.36	6.75	7.20	5.08	6.72	7.37	5.64	6.77	7.03
50 - 54	4.59	5.93	6.41	4.36	5.61	6.42	4.80	6.23	6.40
55 - 59	4.07	4.89	6.39	3.81	4.52	6.27	4.33	5.26	6.51
60 - 64	3.47	4.01	5.46	3.18	3.60	5.22	3.76	4.41	5.70
65 - 69	2.71	3.06	4.32	2.44	2.71	3.84	2.98	3.40	4.79
70 - 74	1.90	2.27	3.02	1.66	1.91	2.55	2.14	2.62	3.49
75 - 79	1.18	1.46	1.89	0.98	1.16	1.50	1.37	1.75	2.27
80 - 84	0.45	0.71	0.92	0.36	0.53	0.70	0.54	0.89	1.14
85 +	0.22	0.35	0.51	0.15	0.22	0.32	0.28	0.48	0.70
0 - 14	29.63	22.09	18.21	30.99	22.93	18.78	28.33	21.28	17.65
20 - 34	24.37	25.81	21.91	24.95	26.91	22.54	23.81	24.74	21.29
35 - 44	13.19	14.49	16.96	12.76	14.72	17.48	13.61	14.27	16.44
45 - 64	17.50	21.57	25.46	16.42	20.44	25.28	18.53	22.67	25.64
15 - 64	63.91	70.06	71.13	63.43	70.55	72.31	64.37	69.59	69.97
65 +	6.46	7.84	10.66	5.58	6.52	8.92	7.30	9.14	12.38

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,100	3,400	3,700	3,900	4,000	4,100	4,000
0 - 4	1,180	1,070	1,010	988	919	842	754
5 - 9	1,290	1,120	1,030	973	888	807	725
10 - 14	1,230	1,270	1,110	1,020	968	853	801
15 - 19	1,100	1,210	1,260	1,100	1,010	888	828
20 - 24	1,020	1,080	1,190	1,230	1,080	927	845
25 - 29	1,080	1,000	1,060	1,170	1,210	1,070	984
30 - 34	1,010	1,060	981	1,040	1,150	1,200	1,050
35 - 39	950	990	1,040	964	1,020	1,130	1,180
40 - 44	827	926	968	1,020	946	1,010	1,120
45 - 49	736	802	900	942	990	925	984
50 - 54	627	706	771	867	909	957	895
55 - 59	566	592	668	731	822	864	911
60 - 64	491	516	541	613	672	758	798
65 - 69	389	425	448	473	538	592	670
70 - 74	279	312	343	364	386	441	488
75 - 79	179	195	220	243	260	277	318
80 - 84	70.0	99.5	109	124	138	148	159
85 +	37.1	41.4	56.6	66.6	77.2	88.0	97.3
0 - 14	3,700	3,460	3,150	2,960	2,820	2,670	2,470
20 - 34	3,110	3,140	3,230	3,440	3,440	3,270	2,980
35 - 44	1,780	1,920	2,010	1,980	1,970	2,140	2,300
45 - 64	2,420	2,620	2,880	3,150	3,390	3,500	3,590
15 - 64	8,410	8,880	9,380	9,680	9,810	9,870	9,790
65 +	954	1,070	1,180	1,270	1,400	1,550	1,730

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## APPENDIX IV—EASTERN EUROPE

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	87,700	91,600	95,200	98,500	101,000	104,000	105,000
0 - 4	9,860	9,100	8,850	8,720	8,400	7,980	7,420
5 - 9	9,820	9,360	8,940	8,500	8,400	8,220	7,780
10 - 14	9,710	9,630	9,210	8,820	8,400	8,350	8,120
15 - 19	8,510	9,550	9,490	9,080	8,490	8,280	8,280
20 - 24	8,660	8,310	9,330	9,300	8,910	8,350	8,180
25 - 29	7,670	6,470	8,100	9,100	9,090	8,710	8,100
30 - 34	7,190	7,420	6,280	7,880	8,880	8,880	8,530
35 - 39	6,220	6,94	7,190	6,100	7,680	8,670	8,580
40 - 44	4,910	5,960	6,680	6,940	5,920	7,450	8,440
45 - 49	4,110	4,660	5,690	6,390	6,650	5,680	7,190
50 - 54	3,500	3,850	4,370	5,360	6,050	6,310	5,400
55 - 59	3,010	3,190	3,520	4,020	4,950	5,600	5,860
60 - 64	2,310	2,630	2,800	3,110	3,570	4,420	5,030
65 - 69	1,800	1,880	2,160	2,320	2,590	3,010	3,740
70 - 74	1,260	1,320	1,390	1,610	1,750	1,980	2,310
75 - 79	747	785	828	888	1,040	1,140	1,300
80 - 84	301	352	379	407	445	527	589
85 +	117	122	143	160	178	199	238
0 - 14	29,400	28,200	26,800	25,800	25,300	24,500	23,300
20 - 34	21,500	22,200	23,700	26,300	26,900	25,900	24,900
35 - 44	11,100	12,900	13,900	13,000	13,600	16,100	17,000
45 - 64	12,900	14,300	16,400	18,900	21,200	22,000	23,500
15 - 64	54,100	59,000	63,500	67,300	70,200	72,400	73,600
65 +	4,230	4,460	4,900	5,380	6,000	6,850	8,180

Age Groups	Male Population. (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	43,300	45,400	47,300	49,100	50,800	52,000	52,800
0 - 4	5,010	4,880	4,820	4,450	4,310	4,080	3,800
5 - 9	4,990	4,760	4,450	4,330	4,310	4,120	3,980
10 - 14	4,930	4,900	4,690	4,400	4,280	4,280	4,180
15 - 19	4,330	4,860	4,830	4,630	4,380	4,230	4,210
20 - 24	3,350	4,230	4,740	4,740	4,540	4,280	4,180
25 - 29	3,790	3,260	4,130	4,640	4,640	4,440	4,180
30 - 34	3,590	3,670	3,170	4,020	4,530	4,540	4,360
35 - 39	3,040	3,480	3,560	3,080	3,930	4,440	4,350
40 - 44	2,350	2,920	3,350	3,440	2,990	3,810	4,320
45 - 49	1,910	2,220	2,770	3,190	3,290	2,870	3,670
50 - 54	1,610	1,770	2,070	2,600	3,000	3,100	2,710
55 - 59	1,390	1,450	1,600	1,880	2,370	2,750	2,850
60 - 64	1,070	1,190	1,250	1,390	1,640	2,080	2,430
65 - 69	831	860	963	1,020	1,140	1,360	1,730
70 - 74	591	596	624	706	753	853	1,030
75 - 79	348	358	367	388	445	481	551
80 - 84	139	159	167	175	189	221	243
85 +	53.0	53.5	61.2	66.5	71.7	79.2	93.2
0 - 14	14,900	14,300	13,700	13,200	12,900	12,500	11,900
20 - 34	10,700	11,200	12,000	13,400	13,700	13,200	12,700
35 - 44	5,390	6,390	6,910	6,520	6,920	8,250	8,670
45 - 64	5,970	6,630	7,690	9,060	10,300	10,800	11,700
15 - 64	26,400	29,000	31,500	33,600	35,300	36,500	37,200
65 +	1,960	2,030	2,180	2,350	2,600	3,000	3,650

## APPENDIX IV—EASTERN EUROPE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	11.24	8.85	7.06	11.57	9.06	7.19	10.92	8.64	6.92
5 - 9	11.20	8.63	7.40	11.52	8.81	7.54	10.88	8.45	7.27
10 - 14	11.07	8.75	7.72	11.38	8.95	7.85	10.76	8.56	7.60
15 - 19	9.70	7.21	7.85	9.99	9.41	7.98	9.42	9.01	7.72
20 - 24	7.60	9.44	7.76	7.73	9.65	7.88	7.47	9.23	7.64
25 - 29	8.74	9.24	7.79	8.74	9.44	7.93	8.74	9.05	7.65
30 - 34	8.20	8.00	8.12	8.30	8.17	8.26	8.11	7.82	7.97
35 - 39	7.09	6.19	8.16	7.03	6.27	8.23	7.14	6.12	8.09
40 - 44	5.60	7.04	8.02	5.42	7.01	8.18	5.78	7.08	7.87
45 - 49	4.69	6.49	6.84	4.41	6.49	6.94	4.97	6.49	6.73
50 - 54	3.99	5.45	5.14	3.71	5.28	5.12	4.26	5.61	5.15
55 - 59	3.43	4.08	5.58	3.20	3.83	5.39	3.66	4.34	5.76
60 - 64	2.63	3.16	4.78	2.47	2.83	4.61	2.79	3.48	4.96
65 - 69	2.05	2.35	3.55	1.92	2.07	3.28	2.18	2.63	3.83
70 - 74	1.44	1.64	2.20	1.36	1.44	1.95	1.52	1.83	2.45
75 - 79	0.85	0.90	1.24	0.80	0.79	1.04	0.90	1.01	1.44
80 - 84	0.34	0.41	0.56	0.32	0.36	0.46	0.37	0.47	0.66
85 +	0.13	0.16	0.23	0.12	0.14	0.18	0.14	0.19	0.28
0 - 14	33.51	26.23	22.18	34.47	26.82	22.58	32.57	25.65	21.79
20 - 34	24.54	26.68	23.67	24.77	27.26	24.07	24.31	26.09	23.26
35 - 44	12.69	13.24	16.19	12.45	13.28	16.41	12.92	13.19	15.96
45 - 64	14.74	19.18	22.34	13.79	18.43	22.06	15.67	19.92	22.61
15 - 64	61.67	68.30	70.04	61.00	68.39	70.52	62.33	68.22	69.55
65 +	4.82	5.47	7.78	4.53	4.79	6.91	5.10	6.14	8.66

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	44,400	46,200	47,800	49,400	50,700	51,700	52,300
0 - 4	4,850	4,480	4,350	4,270	4,130	3,890	3,820
5 - 9	4,830	4,600	4,290	4,170	4,130	4,020	3,800
10 - 14	4,780	4,730	4,520	4,290	4,110	4,080	3,970
15 - 19	4,180	4,690	4,660	4,450	4,180	4,070	4,040
20 - 24	3,310	4,080	4,590	4,560	4,370	4,080	4,000
25 - 29	3,880	3,220	3,970	4,470	4,450	4,270	4,000
30 - 34	3,600	3,750	3,120	3,860	4,350	4,340	4,170
35 - 39	3,170	3,470	3,630	3,020	3,750	4,230	4,240
40 - 44	2,570	3,040	3,330	3,500	2,920	3,640	4,120
45 - 49	2,210	2,440	2,920	3,200	3,370	2,820	3,520
50 - 54	1,890	2,080	2,300	2,770	3,060	3,210	2,700
55 - 59	1,620	1,740	1,920	2,140	2,580	2,860	3,010
60 - 64	1,240	1,440	1,550	1,720	1,930	2,340	2,600
65 - 69	967	1,020	1,200	1,300	1,450	1,640	2,000
70 - 74	673	719	769	903	994	1,120	1,280
75 - 79	398	427	461	500	594	659	752
80 - 84	162	193	212	232	256	306	346
85 +	64.0	68.1	81.9	94.0	106	120	145
0 - 14	14,500	13,800	13,100	12,700	12,400	12,000	11,400
20 - 34	10,800	11,000	11,700	12,900	13,200	12,700	12,200
35 - 44	5,740	6,510	6,960	6,510	6,670	7,870	8,350
45 - 64	6,950	7,690	8,690	9,830	10,900	11,200	11,800
15 - 64	27,700	29,900	32,000	33,700	34,900	35,900	36,400
65 +	2,260	2,430	2,720	3,030	3,400	3,850	4,530

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## APPENDIX IV—ALBANIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,100	1,100	1,200	1,200	1,200	1,300	1,300
0 - 4	120	120	120	130	120	110	100
5 - 9	120	110	110	120	120	110	100
10 - 14	150	120	110	110	110	120	110
15 - 19	120	140	120	110	110	110	110
20 - 24	84	120	140	110	100	100	110
25 - 29	90	80	110	130	110	100	100
30 - 34	84	86	77	110	130	110	98
35 - 39	68	80	82	74	110	120	100
40 - 44	51	64	75	78	70	100	120
45 - 49	39	48	60	70	73	66	95
50 - 54	36	36	44	55	64	68	61
55 - 59	31	32	32	39	49	58	61
60 - 64	27	26	27	27	34	42	50
65 - 69	20	21	21	21	21	27	34
70 - 74	15	14	14	14	15	15	19
75 - 79	7.4	8.4	7.5	8.1	7.9	8.5	8.8
80 - 84	3.1	2.8	3.3	3.1	3.3	3.3	3.6
85 +	1.3	1.0	.94	1.1	1.0	1.2	1.2
0 - 14	390	350	350	350	350	340	320
20 - 34	260	290	330	360	340	310	310
35 - 44	120	140	160	150	180	220	220
45 - 64	130	140	160	190	220	230	270
15 - 64	630	710	770	810	840	880	910
65 +	47	47	47	47	48	55	67

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	540	560	580	610	630	650	660
0 - 4	62	61	63	63	60	58	53
5 - 9	61	57	56	59	60	57	53
10 - 14	75	60	56	66	68	59	58
15 - 19	64	73	59	55	64	57	58
20 - 24	44	62	71	57	53	63	68
25 - 29	46	42	60	69	55	52	51
30 - 34	43	44	41	58	66	54	50
35 - 39	34	41	42	39	56	64	52
40 - 44	24	32	38	40	37	53	61
45 - 49	18	23	30	36	37	35	50
50 - 54	15	16	20	27	32	34	32
55 - 59	14	13	14	18	24	29	30
60 - 64	12	11	11	12	15	20	24
65 - 69	9.8	9.3	8.5	8.2	9.1	12	16
70 - 74	7.4	6.5	6.3	5.8	5.7	6.4	8.2
75 - 79	3.9	4.1	3.6	3.5	3.3	3.3	3.7
80 - 84	1.6	1.5	1.6	1.5	1.4	1.4	1.4
85 +	.67	.54	.50	.52	.49	.49	.48
0 - 14	200	180	180	180	180	170	160
20 - 34	130	150	170	180	170	160	160
35 - 44	58	73	80	79	93	120	110
45 - 64	59	63	75	93	110	120	140
15 - 64	310	360	390	410	430	450	460
65 +	23	22	21	20	20	24	30

## APPENDIX IV—ALBANIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	11.50	10.40	8.05	11.58	10.37	8.08	11.41	10.42	8.02
5 - 9	11.31	9.65	8.05	11.39	9.71	8.08	11.23	9.58	8.02
10 - 14	13.65	8.98	8.52	14.01	9.05	8.54	13.28	8.91	8.49
15 - 19	11.50	8.98	8.82	11.95	9.05	8.84	11.04	8.91	8.80
20 - 24	7.85	9.32	8.52	8.22	9.38	8.54	7.48	9.25	8.49
25 - 29	8.41	11.06	7.74	8.59	11.36	7.78	8.23	10.76	7.70
30 - 34	7.85	9.15	7.59	8.03	9.55	7.62	7.67	8.74	7.55
35 - 39	6.36	6.16	7.82	6.35	6.42	7.93	6.36	5.88	7.70
40 - 44	4.77	6.49	9.06	4.48	6.58	9.30	5.05	6.39	8.80
45 - 49	3.65	5.82	7.35	3.36	5.93	7.62	3.93	5.72	7.08
50 - 54	3.36	4.57	4.72	2.80	4.44	4.88	3.93	4.71	4.56
55 - 59	2.90	3.24	4.72	2.62	2.96	4.57	3.18	3.53	4.87
60 - 64	2.52	2.25	3.87	2.24	1.98	3.66	2.81	2.52	4.09
65 - 69	1.85	1.76	2.63	1.83	1.35	2.44	1.87	2.19	2.83
70 - 74	1.43	1.15	1.49	1.38	0.95	1.25	1.48	1.35	1.73
75 - 79	0.69	0.67	0.68	0.73	0.58	0.56	0.65	0.77	0.80
80 - 84	0.29	0.26	0.28	0.30	0.25	0.21	0.28	0.27	0.35
85 +	0.12	0.09	0.09	0.13	0.09	0.07	0.11	0.09	0.11
0 - 14	36.45	29.03	24.62	36.98	29.13	24.70	35.92	28.92	24.53
20 - 34	24.12	29.53	23.84	24.84	30.29	23.94	23.39	28.75	23.74
35 - 44	11.12	12.64	16.88	10.83	13.00	17.23	11.41	12.27	16.51
45 - 64	12.43	15.89	20.67	11.02	15.31	20.74	13.85	16.48	20.60
15 - 64	59.17	67.04	70.21	58.65	67.65	70.76	59.68	66.41	69.65
65 +	4.38	3.93	5.17	4.37	3.21	4.54	4.39	4.67	5.82

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	530	550	580	590	610	630	640
0 - 4	61	58	61	68	68	64	51
5 - 9	60	55	55	59	58	58	61
10 - 14	71	58	54	59	68	67	64
15 - 19	59	69	57	53	58	58	58
20 - 24	40	57	67	55	51	51	54
25 - 29	44	38	54	64	53	50	48
30 - 34	41	42	36	52	62	51	48
35 - 39	34	39	40	35	50	59	49
40 - 44	27	32	37	38	33	47	56
45 - 49	21	25	30	34	36	31	45
50 - 54	21	20	24	28	32	34	29
55 - 59	17	19	18	21	25	29	31
60 - 64	15	15	16	15	19	22	26
65 - 69	10	12	12	13	12	15	18
70 - 74	7.9	7.0	8.1	8.0	8.9	8.6	11
75 - 79	3.5	4.3	3.9	4.6	4.6	5.2	5.1
80 - 84	1.5	1.3	1.7	1.6	1.9	1.9	2.2
85 +	.58	.50	.44	.55	.55	.67	.72
0 - 14	190	170	170	170	170	170	160
20 - 34	130	140	160	170	170	150	150
35 - 44	61	71	77	73	83	110	110
45 - 64	74	79	88	98	110	120	130
15 - 64	320	360	380	400	410	430	440
65 +	23	25	26	28	28	31	37

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## APPENDIX IV—BULGARIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	6,320	6,550	6,790	7,000	7,170	7,280	7,120
0 - 4	625	591	605	584	557	508	-01
5 - 9	675	596	588	583	575	529	
10 - 14	709	667	588	520	577	571	5
15 - 19	712	698	656	580	573	571	5 5
20 - 24	431	695	681	643	569	543	582
25 - 29	556	420	678	666	630	558	537
30 - 34	520	540	408	461	652	617	547
35 - 39	451	503	523	397	645	637	604
40 - 44	366	434	486	506	385	628	623
45 - 49	283	350	415	466	488	373	608
50 - 54	273	267	330	393	443	465	355
55 - 59	241	250	246	305	365	412	434
60 - 64	167	212	222	219	273	328	373
65 - 69	128	138	177	186	185	232	281
70 - 74	89.6	95.5	104	135	143	143	181
75 - 79	58.0	56.8	61.3	67.7	88.7	95.4	96.4
80 - 84	23.4	28.0	27.9	30.7	34.7	46.2	50.5
85 +	14.7	10.8	11.9	12.4	13.8	16.0	21.2
0 - 14	2,010	1,850	1,760	1,740	1,710	1,610	1,490
20 - 34	1,510	1,660	1,770	1,970	1,850	1,720	1,640
35 - 44	817	937	1,010	903	1,030	1,270	1,230
45 - 64	964	1,080	1,210	1,380	1,570	1,580	1,770
15 - 64	4,000	4,370	4,650	4,840	5,000	5,130	5,210
65 +	314	329	382	432	465	533	631

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,180	3,310	3,430	3,550	3,640	3,700	3,730
0 - 4	319	302	310	304	288	257	228
5 - 9	344	304	289	298	294	278	251
10 - 14	362	340	300	288	285	298	274
15 - 19	364	357	335	296	282	298	280
20 - 24	219	356	350	329	291	278	288
25 - 29	282	214	348	342	325	286	274
30 - 34	264	275	209	340	336	317	281
35 - 39	228	256	267	204	333	329	311
40 - 44	182	220	248	259	198	325	322
45 - 49	136	174	210	237	249	191	314
50 - 54	128	128	163	198	225	237	182
55 - 59	117	116	117	150	183	208	220
60 - 64	81.6	102	102	103	133	163	187
65 - 69	62.2	67.0	84.5	85.2	86.5	112	138
70 - 74	46.2	46.2	50.2	63.8	64.9	66.4	87.0
75 - 79	29.1	29.2	29.5	32.5	41.8	43.0	44.5
80 - 84	11.9	14.0	14.3	14.7	16.7	21.8	22.8
85 +	7.23	5.40	5.87	6.23	6.68	7.67	10.0
0 - 14	1,030	946	899	888	872	825	761
20 - 34	765	845	907	1,010	950	881	843
35 - 44	410	476	515	463	531	654*	633
45 - 64	463	520	592	688	790	799	903
15 - 64	2,000	2,200	2,350	2,460	2,550	2,630	2,670
65 +	157	162	184	202*	217	251	302

## APPENDIX IV—BULGARIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	9.89	8.48	6.30	10.02	8.57	6.32	9.75	8.39	6.27
5 - 9	10.68	8.32	6.69	10.81	8.40	6.73	10.54	8.25	6.66
10 - 14	11.21	7.99	7.31	11.37	8.06	7.34	11.05	7.93	7.27
15 - 19	11.26	8.28	7.72	11.43	8.34	7.75	11.08	8.22	7.59
20 - 24	6.82	9.18	7.68	6.88	9.27	7.72	6.75	9.09	7.63
25 - 29	8.79	9.51	7.29	8.86	9.64	7.34	8.73	9.37	7.24
30 - 34	8.22	9.44	7.47	8.29	9.58	7.53	8.15	9.29	7.41
35 - 39	7.13	5.67	8.25	7.16	5.75	8.33	7.10	5.58	8.16
40 - 44	5.79	7.22	8.51	5.72	7.30	8.63	5.86	7.15	8.38
45 - 49	4.48	6.65	8.30	4.27	6.68	8.42	4.68	6.63	8.10
50 - 54	4.32	5.61	4.85	4.02	5.58	4.88	4.62	5.64	4.82
55 - 59	3.81	4.35	5.93	3.68	4.23	5.90	3.95	4.48	5.96
60 - 64	2.64	3.13	5.09	2.56	2.90	5.01	2.72	3.36	5.10
65 - 69	2.02	2.66	3.84	1.95	2.40	3.70	2.10	2.92	3.49
70 - 74	1.42	1.92	2.48	1.45	1.80	2.33	1.38	2.05	2.63
75 - 79	0.92	0.97	1.32	0.91	0.92	1.19	0.92	1.02	1.45
80 - 84	0.37	0.44	0.69	0.37	0.41	0.61	0.37	0.46	0.77
85 +	0.23	0.18	0.29	0.23	0.18	0.27	0.24	0.18	0.31
0 - 14	31.77	24.80	20.30	32.20	25.03	20.40	31.34	24.56	20.19
20 - 34	23.83	28.12	22.44	24.03	28.49	22.59	23.63	27.75	22.28
35 - 44	12.92	12.89	16.76	12.88	13.05	16.96	12.96	12.73	16.53
45 - 64	15.25	19.74	24.18	14.53	19.39	24.20	15.97	20.11	24.15
15 - 64	63.26	69.04	71.09	62.88	69.27	71.50	63.65	68.80	70.66
65 +	4.96	6.16	8.61	4.92	5.70	8.10	5.00	6.63	9.14

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,140	3,250	3,360	3,460	3,530	3,570	3,590
0 - 4	306	289	295	290	270	245	255
5 - 9	331	292	277	285	281	263	239
10 - 14	347	327	288	274	292	279	261
15 - 19	348	341	321	284	271	279	270
20 - 24	212	339	333	314	278	255	274
25 - 29	274	206	330	324	307	272	266
30 - 34	256	265	199	321	316	300	266
35 - 39	223	247	256	193	312	308	293
40 - 44	184	214	238	247	187	303	301
45 - 49	147	176	205	229	239	182	294
50 - 54	145	139	167	195	218	228	173
55 - 59	124	134	129	155	182	204	214
60 - 64	85.4	110	120	116	140	165	186
65 - 69	65.8	71.0	92.5	101	98.3	120	143
70 - 74	43.4	49.3	53.8	70.8	78.3	76.7	94.4
75 - 79	28.9	27.6	31.8	35.2	46.9	52.4	51.9
80 - 84	11.5	14.0	13.6	6.0	18.0	24.4	27.7
85 +	7.44	5.45	6.01	6.15	7.16	8.28	11.2
0 - 14	984	908	860	849	833	787	725
20 - 34	742	810	862	959	901	837	800
35 - 44	407	461	494	440	499	611	594
45 - 64	501	559	621	695	779	779	867
15 - 64	2,000	2,170	2,300	2,380	2,450	2,510	2,540
65 +	157	167	198	229	249	282	328

Notes on page 314.

## APPENDIX IV—GROSS

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,180	7,530	7,830	8,100	8,350	8,570	8,640
4 - 4	973	289	935	715	704	688	648
5 - 9	830	929	759	700	680	685	668
10 - 14	732	915	816	73	698	680	678
15 - 19	628	721	804	805	734	688	673
20 - 24	580	615	706	789	741	722	680
25 - 29	624	564	599	688	771	776	700
30 - 34	550	608	548	583	673	755	760
35 - 39	487	532	590	513	569	658	640
40 - 44	385	466	513	570	517	553	642
45 - 49	318	367	446	491	547	497	534
50 - 54	297	316	344	421	465	519	473
55 - 59	261	271	290	317	389	431	483
60 - 64	221	231	240	258	283	348	388
65 - 69	156	181	191	199	217	239	296
70 - 74	111	115	135	144	152	166	185
75 - 79	64.5	69.0	72.6	86.4	93.3	100	111
80 - 84	28.8	30.4	33.4	35.7	43.3	47.5	52.0
85 +	11.6	11.9	12.8	14.2	15.7	19.0	21.8
0 - 14	2,430	2,430	2,300	2,160	2,090	2,050	1,990
20 - 34	1,760	1,790	1,850	2,060	2,240	2,250	2,150
35 - 44	872	998	1,100	1,100	1,090	1,210	1,280
45 - 64	1,120	1,190	1,320	1,490	1,680	1,800	1,880
15 - 64	4,380	4,690	5,080	5,460	5,740	5,950	5,980
65 +	371	407	445	479	521	572	665

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,580	3,760	3,920	4,060	4,200	4,320	4,310
0 - 4	451	458	380	368	368	358	333
5 - 9	428	428	388	365	358	355	346
10 - 14	375	420	421	384	381	352	351
15 - 19	321	369	414	415	378	358	348
20 - 24	301	314	361	406	408	378	351
25 - 29	315	293	306	352	397	400	366
30 - 34	265	305	285	298	344	389	392
35 - 39	236	256	296	277	291	337	281
40 - 44	186	225	246	285	268	282	328
45 - 49	157	176	214	234	272	256	271
50 - 54	135	145	163	200	220	256	242
55 - 59	127	121	131	148	182	201	236
60 - 64	108	109	105	114	130	160	178
65 - 69	76.3	86.4	88.3	85.4	93.6	107	133
70 - 74	51.9	55.0	62.8	64.7	63.2	69.9	80.9
75 - 79	30.2	31.4	31.8	39.1	40.8	40.3	45.1
80 - 84	12.9	13.7	14.7	16.1	19.0	20.1	20.3
85 +	5.13	5.06	5.42	5.89	6.57	7.79	8.60
0 - 14	1,250	1,260	1,190	1,120	1,080	1,060	1,030
20 - 34	881	912	952	1,060	1,150	1,160	1,110
35 - 44	422	481	542	562	559	619	609
45 - 64	527	551	613	696	804	873	927
15 - 64	2,150	2,310	2,520	2,730	2,890	3,010	2,990
65 +	170	192	205	211	223	245	288

## APPENDIX IV—GRACE

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	12.15	8.80	7.43	12.59	9.09	7.72	11.72	8.50	7.15
5 - 9	11.55	8.72	7.74	11.95	8.99	8.03	11.16	8.15	7.45
10 - 14	10.19	9.18	7.85	10.47	9.46	8.14	9.91	8.89	7.56
15 - 19	8.74	9.94	7.79	8.96	10.23	8.07	8.52	9.66	7.32
20 - 24	8.07	9.75	7.87	8.40	10.00	8.14	7.75	9.49	7.41
25 - 29	8.74	8.50	8.21	8.80	8.67	8.49	8.69	8.32	7.93
30 - 34	7.66	7.20	8.80	7.40	7.34	9.09	7.91	7.06	8.51
35 - 39	6.78	6.58	7.41	6.59	6.83	6.52	6.97	6.34	8.30
40 - 44	5.36	7.04	7.43	5.19	7.02	7.61	5.53	7.06	7.26
45 - 49	4.71	6.07	6.18	4.38	5.77	6.29	5.03	6.17	6.08
50 - 54	4.13	5.20	5.48	3.77	4.93	5.61	4.50	5.47	5.34
55 - 59	3.66	3.92	5.59	3.55	3.65	5.47	3.78	4.19	5.71
60 - 64	3.08	3.19	4.49	3.02	2.81	4.13	3.14	3.57	4.86
65 - 69	2.17	2.46	3.43	2.13	2.10	3.09	2.20	2.82	3.77
70 - 74	1.54	1.77	2.14	1.45	1.59	1.88	1.63	1.95	2.40
75 - 79	0.90	1.07	1.28	0.84	0.96	1.05	0.95	1.17	1.51
80 - 84	0.40	0.44	0.60	0.36	0.40	0.47	0.44	0.49	0.73
85 +	0.16	0.18	0.25	0.14	0.15	0.20	0.18	0.21	0.31
0 - 14	33.90	26.69	23.02	35.01	27.55	23.89	32.79	25.84	22.15
20 - 34	24.47	25.45	24.89	24.60	26.02	25.73	24.35	24.87	24.05
35 - 44	12.14	13.63	14.85	11.78	13.85	14.13	12.49	13.40	15.56
45 - 64	15.58	18.37	21.75	14.71	17.15	21.50	16.44	19.59	21.99
15 - 64	60.93	67.38	69.27	60.06	67.25	69.43	61.80	67.52	69.12
65 +	5.17	5.92	7.70	4.93	5.20	6.68	5.41	6.64	8.73

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	3,600	3,770	3,910	4,040	4,150	4,250	4,320
0 - 4	422	381	358	343	340	330	308
5 - 9	402	401	384	341	332	330	322
10 - 14	357	395	395	388	337	328	327
15 - 19	307	352	390	390	355	333	326
20 - 24	279	301	345	383	383	349	320
25 - 29	313	271	293	336	374	376	343
30 - 34	285	303	263	285	329	366	368
35 - 39	251	276	294	256	278	321	359
40 - 44	199	241	267	285	249	271	314
45 - 49	181	191	232	257	275	241	263
50 - 54	162	171	181	221	245	263	231
55 - 59	136	150	159	169	207	230	247
60 - 64	113	122	135	144	153	188	210
65 - 69	79.3	94.5	103	114	123	132	163
70 - 74	58.8	59.8	72.0	78.9	88.7	96.2	104
75 - 79	34.3	37.6	38.8	47.3	52.5	59.7	65.5
80 - 84	15.9	16.7	18.7	19.6	24.3	27.4	31.7
85 +	6.48	6.84	7.35	8.32	9.08	11.2	13.2
0 - 14	1,180	1,180	1,110	1,040	1,010	988	958
20 - 34	877	875	901	1,000	1,090	1,090	1,040
35 - 44	450	517	561	541	527	592	673
45 - 64	592	634	707	791	880	922	951
15 - 64	2,230	2,380	2,560	2,730	2,850	2,940	2,990
65 +	195	215	240	268	298	327	377

## APPENDIX IV—LITHUANIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	2,460	2,530	2,580	2,630	2,660	2,670	2,660
0 - 4	240	211	182	182	172	165	144
5 - 9	247	231	232	187	177	169	157
10 - 14	248	244	228	202	185	178	168
15 - 19	218	245	241	226	200	183	171
20 - 24	175	214	240	237	222	197	181
25 - 29	217	170	210	236	233	218	184
30 - 34	229	212	167	206	232	229	216
35 - 39	202	223	207	163	202	228	225
40 - 44	164	197	217	201	159	197	223
45 - 49	120	158	189	210	195	155	192
50 - 54	93.1	113	150	180	200	187	149
55 - 59	81.2	86.0	105	140	168	187	175
60 - 64	69.4	72.4	77.0	94.3	126	152	170
65 - 69	58.7	58.1	61.2	65.5	80.4	108	131
70 - 74	45.4	44.5	44.5	47.3	50.9	63.0	85.0
75 - 79	28.9	29.6	29.4	29.7	31.9	34.7	43.3
80 - 84	15.1	14.7	15.4	15.5	15.9	17.4	19.0
85 +	5.51	6.39	6.57	6.99	7.28	7.65	8.49
0 - 14	735	686	624	570	534	504	469
20 - 34	621	596	617	679	687	644	591
35 - 44	367	420	424	364	361	426	448
45 - 64	363	430	521	624	689	681	686
15 - 64	1,570	1,690	1,800	1,890	1,940	1,930	1,900
65 +	154	153	157	165	186	231	287

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,180	1,220	1,250	1,280	1,300	1,310	1,310
0 - 4	121	107	87.5	82.3	87.6	81.4	73.4
5 - 9	125	117	103	94.6	89.9	85.7	78.8
10 - 14	125	123	115	102	89.7	88.3	85.1
15 - 19	110	124	122	114	101	82.8	88.5
20 - 24	87.0	108	121	120	112	88.7	91.6
25 - 29	109	84.9	106	119	118	110	88.2
30 - 34	108	106	83.1	104	117	116	109
35 - 39	92.5	106	104	81.4	102	115	114
40 - 44	77.0	89.6	103	101	79.6	99.8	113
45 - 49	54.4	73.8	86.1	99.0	97.8	77.2	97.0
50 - 54	40.3	51.0	69.5	81.4	94.0	93.1	73.7
55 - 59	33.1	36.7	40.7	64.0	75.2	87.2	86.6
60 - 64	30.3	28.9	32.3	41.3	56.8	67.2	78.1
65 - 69	25.3	24.8	23.8	26.8	34.4	47.6	56.6
70 - 74	19.1	18.5	18.3	17.8	20.1	26.1	36.5
75 - 79	12.6	11.9	11.7	11.7	11.5	13.2	17.4
80 - 84	6.48	6.05	5.82	5.84	5.95	5.98	6.97
85 +	2.22	2.54	2.50	2.45	2.50	2.61	2.68
0 - 14	371	347	315	289	271	256	238
20 - 34	304	299	310	343	347	326	299
35 - 44	169	196	207	182	182	215	227
45 - 64	158	190	235	286	324	325	335
15 - 64	742	809	874	925	953	958	950
65 +	65.7	63.8	62.1	64.6	74.5	95.5	120

## APPENDIX IV—LITHUANIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	9.77	6.41	5.42	10.27	7.22	5.61	9.31	6.61	5.24
5 - 9	10.05	7.10	5.92	10.61	7.40	6.11	9.54	6.82	5.71
10 - 14	10.09	7.68	6.31	10.61	7.98	6.50	9.62	7.40	6.12
15 - 19	8.87	8.60	6.56	9.34	8.92	6.76	8.45	8.30	6.37
20 - 24	7.10	9.02	6.82	7.38	9.39	7.00	6.84	8.67	6.61
25 - 29	8.83	8.98	7.32	9.25	9.31	7.51	8.45	8.67	7.11
30 - 34	9.32	7.84	8.13	9.17	8.13	8.33	9.46	7.56	7.94
35 - 39	8.24	6.20	8.47	7.85	6.37	8.71	8.60	6.05	8.24
40 - 44	6.68	7.65	8.40	6.53	7.90	8.64	6.81	7.41	8.16
45 - 49	4.87	7.99	7.24	4.62	7.74	7.41	5.10	8.22	7.08
50 - 54	3.79	6.86	5.60	3.42	6.37	5.63	4.13	7.13	5.56
55 - 59	3.30	5.31	6.60	2.81	5.01	6.62	3.76	5.59	6.58
60 - 64	2.82	3.59	6.41	2.57	3.23	5.97	3.06	3.93	5.83
65 - 69	2.39	2.49	4.94	2.15	2.10	4.33	2.61	2.87	5.54
70 - 74	1.85	1.80	3.20	1.62	1.39	2.79	2.06	2.19	3.60
75 - 79	1.18	1.13	1.63	1.07	0.92	1.33	1.27	1.33	1.92
80 - 84	0.62	0.59	0.71	0.55	0.46	0.53	0.68	0.72	0.89
85 +	0.22	0.27	0.32	0.19	0.19	0.20	0.26	0.34	0.43
0 - 14	29.91	21.69	17.65	31.49	22.60	18.22	28.47	20.84	17.09
20 - 34	25.25	25.84	22.26	25.80	26.83	22.84	24.75	24.90	21.71
35 - 44	14.92	13.85	16.87	14.39	14.27	17.35	15.41	13.46	16.40
45 - 64	14.79	23.75	25.85	13.42	22.34	25.64	16.05	25.07	26.05
15 - 64	63.83	72.03	71.54	62.94	72.35	72.59	64.66	71.72	70.52
65 +	6.25	6.28	10.81	5.58	5.05	9.18	6.88	7.44	12.39

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	1,280	1,310	1,330	1,350	1,360	1,360	1,350
0 - 4	119	104	84.8	89.2	84.5	78.4	79.8
5 - 9	122	114	121	89.1	87.8	83.5	77.2
10 - 14	123	121	113	89.8	91.3	88.5	82.5
15 - 19	108	124	119	112	98.8	90.8	85.8
20 - 24	87.5	106	119	117	110	87.5	88.4
25 - 29	108	85.5	104	117	115	108	88.1
30 - 34	121	106	83.5	102	115	113	107
35 - 39	110	117	103	81.6	99.8	113	111
40 - 44	87.1	107	114	100	79.7	97.7	110
45 - 49	65.2	84.1	103	111	97.5	77.7	95.4
50 - 54	52.8	62.2	80.5	98.9	106	93.8	74.9
55 - 59	48.1	49.3	58.2	75.5	93.0	100	88.6
60 - 64	39.1	43.5	44.7	53.0	69.0	85.2	92.1
65 - 69	33.4	33.3	37.4	38.7	46.0	60.2	74.7
70 - 74	26.3	26.0	26.2	29.5	30.8	36.9	48.5
75 - 79	16.3	17.7	17.7	18.0	20.4	21.5	25.9
80 - 84	8.65	8.66	9.55	9.66	9.91	11.4	12.0
85 +	3.29	3.85	4.07	4.54	4.78	5.04	5.81
0 - 14	364	339	309	281	263	248	230
20 - 34	317	297	306	336	340	319	293
35 - 44	197	224	217	182	180	211	221
45 - 64	205	239	286	338	366	357	351
15 - 64	827	882	929	968	984	976	950
65 +	87.9	89.5	94.9	100	112	135	167

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## APPENDIX IV—POLAND

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	35,200	36,700	38,100	39,400	40,400	41,000	41,400
0 - 4	3,610	3,380	3,230	3,120	2,980	2,740	2,520
5 - 9	3,680	3,490	3,290	3,150	3,040	2,910	2,710
10 - 14	3,820	3,630	3,450	3,250	3,120	3,040	2,880
15 - 19	3,400	3,270	3,590	3,410	3,210	3,090	3,110
20 - 24	2,800	3,340	3,700	3,530	3,360	3,170	3,050
25 - 29	3,050	2,740	2,280	1,640	3,470	3,300	3,120
30 - 34	3,070	2,970	2,690	3,210	3,570	3,420	3,260
35 - 39	2,610	2,990	2,910	2,620	3,160	3,510	3,370
40 - 44	2,090	2,530	2,900	2,940	2,570	3,090	3,450
45 - 49	1,660	2,000	2,440	2,810	2,750	2,490	1,910
50 - 54	1,400	1,570	1,900	2,330	2,690	2,640	2,390
55 - 59	1,170	1,290	1,460	1,770	2,180	2,520	2,480
60 - 64	963	1,040	1,160	1,310	1,600	1,980	2,300
65 - 69	767	808	882	983	1,120	1,380	1,700
70 - 74	558	582	621	682	766	880	1,090
75 - 79	329	366	386	415	461	522	605
80 - 84	136	169	191	204	223	251	287
85 +	48.4	57.9	72.8	85.6	95.2	107	122
0 - 14	11,100	10,500	9,970	9,520	9,140	8,690	8,120
20 - 34	8,920	9,050	9,660	10,400	10,400	9,890	9,440
35 - 44	4,700	5,520	5,810	5,460	5,730	6,600	6,820
45 - 64	5,180	5,910	6,950	8,220	9,220	9,630	10,200
15 - 64	22,200	24,200	26,000	27,500	28,600	29,200	29,500
65 +	1,840	1,980	2,150	2,370	2,660	3,130	3,800

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	17,200	18,000	18,800	19,400	20,000	20,400	20,600
0 - 4	1,830	1,720	1,650	1,580	1,510	1,400	1,280
5 - 9	1,860	1,770	1,620	1,600	1,580	1,480	1,380
10 - 14	1,930	1,840	1,750	1,650	1,580	1,550	1,470
15 - 19	1,720	1,910	1,820	1,730	1,630	1,570	1,530
20 - 24	1,390	1,690	1,870	1,790	1,700	1,610	1,550
25 - 29	1,490	1,360	1,660	1,840	1,760	1,670	1,680
30 - 34	1,510	1,450	1,330	1,620	1,810	1,730	1,650
35 - 39	1,270	1,470	1,420	1,300	1,600	1,780	1,710
40 - 44	981	1,230	1,430	1,390	1,280	1,560	1,750
45 - 49	771	941	1,180	1,380	1,340	1,240	1,520
50 - 54	641	725	888	1,120	1,310	1,280	1,180
55 - 59	534	586	665	819	1,040	1,220	1,190
60 - 64	437	464	516	589	729	927	1,100
65 - 69	346	358	386	428	492	613	783
70 - 74	246	254	266	289	323	375	471
75 - 79	143	155	162	171	188	213	250
80 - 84	56.7	69.2	76.0	81.1	87.7	98.5	113
85 +	19.4	22.4	27.5	31.3	34.6	38.2	43.6
0 - 14	5,620	5,330	5,070	4,840	4,660	4,430	4,140
20 - 34	4,390	4,500	4,860	5,250	5,270	5,010	4,790
35 - 44	2,250	2,700	2,850	2,690	2,880	3,340	3,460
45 - 64	2,380	2,720	3,250	3,910	4,420	4,670	4,990
15 - 64	10,700	11,800	12,800	13,600	14,200	14,600	14,800
65 +	811	859	917	1,000	1,130	1,340	1,660

## APPENDIX IV—POLAND

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	10.27	7.93	6.09	10.65	8.19	6.27	9.90	7.67	5.91
5 - 9	10.47	8.00	6.55	10.83	8.24	6.71	10.12	7.77	6.39
10 - 14	10.47	8.26	6.99	11.24	8.50	7.15	10.51	8.02	6.81
15 - 19	9.67	8.66	7.28	10.01	8.91	7.44	9.34	8.42	7.11
20 - 24	7.97	8.97	7.37	8.09	9.22	7.54	7.84	8.72	7.21
25 - 29	8.68	9.25	7.57	8.68	9.48	7.71	8.68	9.03	7.40
30 - 34	8.73	8.15	7.88	8.79	8.34	8.02	8.68	7.97	7.74
35 - 39	7.42	6.66	8.15	7.39	6.69	8.31	7.45	6.61	7.98
40 - 44	5.95	7.21	8.34	5.71	7.16	8.51	6.17	7.27	8.17
45 - 49	4.71	7.14	7.28	4.49	7.11	7.39	4.92	7.17	7.16
50 - 54	3.97	5.92	5.78	3.73	5.77	5.74	4.19	6.07	5.92
55 - 59	3.33	4.50	5.99	3.11	4.22	5.78	3.54	4.78	6.20
60 - 64	2.74	3.33	5.56	2.54	3.03	5.35	2.93	3.62	5.77
65 - 69	2.18	2.50	4.11	2.01	2.20	3.81	2.34	2.78	4.42
70 - 74	1.59	1.73	2.63	1.43	1.49	2.29	1.74	1.97	2.96
75 - 79	0.94	1.05	1.46	0.83	0.88	1.22	1.03	1.22	1.71
80 - 84	0.39	0.52	0.69	0.33	0.42	0.55	0.44	0.62	0.84
85 +	0.14	0.22	0.30	0.11	0.16	0.21	0.16	0.27	0.38
0 - 14	31.60	24.19	19.63	32.72	24.92	20.13	30.54	23.47	19.13
20 - 34	25.37	26.37	22.82	25.56	27.04	23.29	25.20	25.72	22.33
35 - 44	17.37	13.87	16.48	13.11	13.85	16.82	13.63	13.89	16.15
45 - 64	14.75	20.89	24.61	13.87	20.13	24.26	15.58	21.64	24.95
15 - 64	63.17	69.79	71.18	62.56	69.92	71.80	63.75	69.67	70.57
65 +	5.23	6.02	9.19	4.72	5.15	8.07	5.71	6.87	10.30

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	18,000	18,700	19,400	19,900	20,400	20,700	20,800
0 - 4	1,780	1,680	1,580	1,530	1,450	1,340	1,290
5 - 9	1,820	1,720	1,620	1,560	1,500	1,430	1,330
10 - 14	1,890	1,790	1,700	1,600	1,530	1,490	1,420
15 - 19	1,660	1,860	1,770	1,680	1,580	1,520	1,480
20 - 24	1,410	1,650	1,830	1,740	1,660	1,560	1,500
25 - 29	1,560	1,380	1,620	1,800	1,710	1,630	1,520
30 - 34	1,560	1,520	1,350	1,590	1,760	1,690	1,610
35 - 39	1,340	1,520	1,490	1,320	1,560	1,730	1,660
40 - 44	1,110	1,300	1,470	1,450	1,290	1,530	1,700
45 - 49	885	1,060	1,260	1,430	1,410	1,250	1,490
50 - 54	754	843	1,010	1,210	1,380	1,360	1,210
55 - 59	636	703	793	953	1,140	1,300	1,290
60 - 64	526	575	640	722	871	1,050	1,200
65 - 69	421	450	496	555	628	762	919
70 - 74	312	328	353	393	443	505	616
75 - 79	186	211	224	244	273	309	355
80 - 84	79.3	199.5	115	123	135	152	174
85 +	29.0	35.5	45.3	54.3	60.6	68.4	78.6
0 - 14	5,490	5,170	4,900	4,680	4,480	4,260	3,980
20 - 34	4,530	4,550	4,800	5,130	5,130	4,880	4,650
35 - 44	2,450	2,820	2,960	2,770	2,850	3,260	3,360
45 - 64	2,800	3,180	3,700	4,320	4,800	4,960	5,190
15 - 64	11,500	12,400	13,200	13,900	14,400	14,800	14,700
65 +	1,030	1,120	1,240	1,370	1,540	1,800	2,140

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## APPENDIX IV—ROMANIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	20,300	21,300	22,200	23,100	24,000	24,800	25,300
0 - 4	2,560	2,350	2,280	2,270	2,280	2,180	2,080
5 - 9	2,430	2,380	2,220	2,140	2,170	2,170	2,120
10 - 14	2,290	2,370	2,330	2,170	2,110	2,140	2,130
15 - 19	1,940	2,250	2,330	2,290	2,130	2,080	2,110
20 - 24	1,440	1,890	2,190	2,280	2,250	2,090	2,040
25 - 29	1,900	1,440	1,830	2,120	2,220	2,190	2,040
30 - 34	1,520	1,820	1,390	1,760	2,060	2,150	2,130
35 - 39	1,370	1,460	1,750	1,340	1,700	2,000	2,090
40 - 44	1,010	1,300	1,390	1,670	1,280	1,640	1,930
45 - 49	1,010	954	1,230	1,320	1,590	1,220	1,570
50 - 54	797	934	886	1,140	1,230	1,490	1,150
55 - 59	711	715	844	803	1,040	1,130	1,370
60 - 64	454	609	616	731	699	913	993
65 - 69	379	360	488	498	596	575	757
70 - 74	235	266	256	352	362	440	427
75 - 79	143	137	158	154	216	225	277
80 - 84	47.8	61.1	59.9	70.5	70.8	101	108
85 +	17.9	17.6	22.2	23.3	27.5	29.0	40.3
0 - 14	7,280	7,100	6,790	6,580	6,530	6,490	6,280
20 - 34	4,910	5,150	5,400	6,160	6,530	6,430	6,210
35 - 44	2,380	2,760	3,140	3,010	2,990	3,640	4,020
45 - 64	2,970	3,210	3,570	3,990	4,560	4,760	5,090
15 - 64	12,200	13,400	14,400	15,500	16,200	16,900	17,400
65 +	822	842	984	1,100	1,270	1,370	1,610

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	10,100	10,600	11,100	11,600	12,000	12,400	12,800
0 - 4	1,290	1,190	1,140	1,150	1,140	1,110	1,040
5 - 9	1,230	1,200	1,110	1,080	1,100	1,100	1,070
10 - 14	1,160	1,200	1,180	1,100	1,070	1,080	1,080
15 - 19	981	1,140	1,180	1,160	1,080	1,080	1,070
20 - 24	746	956	1,110	1,160	1,140	1,080	1,080
25 - 29	923	722	928	1,080	1,130	1,110	1,040
30 - 34	783	891	699	900	1,050	1,100	1,090
35 - 39	670	752	859	676	873	1,030	1,070
40 - 44	489	637	717	823	650	843	993
45 - 49	461	458	599	677	779	617	804
50 - 54	377	423	422	554	629	727	578
55 - 59	328	334	377	378	498	568	661
60 - 64	218	278	284	322	324	431	495
65 - 69	174	172	221	228	260	264	354
70 - 74	119	122	122	159	165	191	195
75 - 79	71.7	69.7	72.6	73.4	96.8	102	119
80 - 84	25.6	30.9	30.6	32.5	33.8	45.7	49.1
85 +	9.36	9.42	11.3	11.8	12.7	13.6	17.9
0 - 14	3,680	3,590	3,430	3,330	3,310	3,290	3,190
20 - 34	2,450	2,570	2,740	3,140	3,320	3,270	3,160
35 - 44	1,160	1,390	1,580	1,500	1,520	1,870	2,060
45 - 64	1,380	1,490	1,680	1,930	2,230	2,340	2,540
15 - 64	5,980	6,590	7,180	7,730	8,150	8,540	8,830
65 +	400	404	458	505	568	616	735

## APPENDIX IV—ROMANIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	12.61	9.81	8.10	12.83	9.94	8.15	12.39	9.68	8.04
5 - 9	11.97	9.25	8.29	12.23	9.34	8.39	11.71	9.16	8.20
10 - 14	11.28	9.38	8.41	11.54	9.51	8.47	11.02	9.25	8.16
15 - 19	9.54	9.90	8.33	9.76	10.03	8.39	9.34	9.77	8.28
20 - 24	7.35	9.85	8.60	7.42	10.03	8.07	7.29	9.68	8.04
25 - 29	9.34	9.16	8.06	9.18	9.34	8.15	9.49	8.99	7.96
30 - 34	7.50	7.62	8.41	7.79	7.78	8.54	7.23	7.47	8.28
35 - 39	6.74	5.78	8.25	6.66	5.85	8.39	6.81	5.72	8.12
40 - 44	4.99	7.24	7.62	4.86	7.12	7.78	5.12	7.35	7.46
45 - 49	4.97	5.69	6.20	4.58	5.85	6.30	5.36	5.32	6.11
50 - 54	3.92	4.94	4.55	3.75	4.79	4.53	4.10	5.08	4.58
55 - 59	3.50	3.47	5.42	3.26	3.27	5.18	3.74	3.67	5.67
60 - 64	2.24	3.16	3.92	2.17	2.78	3.88	2.30	3.53	3.96
65 - 69	1.86	2.15	2.99	1.73	1.97	2.78	1.99	2.33	3.21
70 - 74	1.16	1.52	1.69	1.18	1.37	1.53	1.13	1.67	1.85
75 - 79	0.71	0.67	1.09	0.71	0.63	0.93	0.70	0.70	1.26
80 - 84	0.24	0.30	0.43	0.25	0.28	0.38	0.22	0.33	0.47
85 +	0.09	0.10	0.16	0.09	0.10	0.14	0.08	0.10	0.18
0 - 14	35.85	28.44	24.80	36.60	28.79	25.01	35.12	28.09	24.60
20 - 34	24.19	26.64	24.53	24.38	27.15	24.77	24.01	26.13	24.28
35 - 44	11.73	13.02	15.88	11.53	12.96	16.17	11.93	13.08	15.58
45 - 64	14.64	17.25	20.10	13.76	16.70	19.90	15.49	17.81	20.31
15 - 64	60.10	66.81	68.84	59.43	66.84	69.23	60.76	66.78	68.44
65 +	4.05	4.75	6.36	3.97	4.36	5.76	4.12	5.13	6.96

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	10,300	10,700	11,200	11,600	12,000	12,300	12,600
0 - 4	1,270	1,180	1,120	1,120	1,110	1,070	1,010
5 - 9	1,200	1,180	1,080	1,080	1,070	1,070	1,030
10 - 14	1,130	1,170	1,150	1,070	1,040	1,080	1,080
15 - 19	957	1,110	1,150	1,130	1,050	1,080	1,040
20 - 24	747	930	1,080	1,120	1,110	1,030	1,010
25 - 29	973	719	897	1,040	1,090	1,080	1,020
30 - 34	741	931	690	864	1,010	1,050	1,040
35 - 39	698	706	891	662	831	972	1,020
40 - 44	525	662	673	851	634	799	937
45 - 49	549	496	627	639	811	606	767
50 - 54	420	511	464	588	602	767	575
55 - 59	383	381	467	425	542	557	712
60 - 64	236	331	332	409	375	482	498
65 - 69	204	188	267	270	336	311	403
70 - 74	116	144	134	193	197	249	232
75 - 79	71.5	67.7	85.3	81.0	119	123	158
80 - 84	22.2	30.2	29.3	38.0	37.0	55.7	59.0
85 +	8.51	8.13	10.9	11.5	14.8	15.4	22.4
0 - 14	3,600	3,510	3,360	3,250	3,220	3,200	3,090
20 - 34	2,460	2,580	2,670	3,020	3,210	3,160	3,050
35 - 44	1,220	1,370	1,560	1,510	1,470	1,770	1,960
45 - 64	1,590	1,720	1,890	2,060	2,330	2,410	2,550
15 - 64	6,230	6,780	7,270	7,730	8,060	8,370	8,600
65 +	422	430	527	593	704	754	874

Notes on page 314.

## APPENDIX IV—YUGOSLAVIA

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	15,200	15,800	16,400	17,100	17,700	18,200	18,500
0 - 4	1,830	1,250	1,700	1,720	1,880	1,850	1,570
5 - 9	1,830	1,720	1,820	1,680	1,650	1,630	1,580
10 - 14	1,760	1,790	1,690	1,580	1,580	1,630	1,810
15 - 19	1,490	1,720	1,750	1,680	1,550	1,570	1,810
20 - 24	1,100	1,440	1,680	1,710	1,620	1,630	1,500
25 - 29	1,230	1,060	1,390	1,620	1,660	1,570	1,480
30 - 34	1,220	1,180	1,020	1,340	1,560	1,600	1,520
35 - 39	1,030	1,160	1,130	974	1,290	1,510	1,550
40 - 44	839	972	1,100	1,070	930	1,240	1,450
45 - 49	667	784	911	1,030	1,010	880	1,180
50 - 54	607	612	721	843	959	942	823
55 - 59	512	541	548	648	760	869	857
60 - 64	405	433	460	468	557	658	755
65 - 69	290	316	339	364	374	450	535
70 - 74	210	199	218	238	258	268	327
75 - 79	116	118	113	127	140	154	162
80 - 84	46.9	46.3	48.2	47.3	54.1	61.0	68.5
85 +	17.7	16.0	15.9	16.9	17.2	19.7	22.9
0 - 14	5,420	5,240	5,010	4,920	4,930	4,860	4,660
20 - 34	3,540	3,680	4,090	4,670	4,840	4,700	4,540
35 - 44	1,870	2,130	2,220	2,040	2,250	2,750	3,000
45 - 64	2,190	2,370	2,640	2,990	3,290	3,350	3,610
15 - 64	9,090	9,900	10,700	11,400	11,900	12,400	12,800
65 +	680	695	735	793	843	953	1,120

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,590	7,960	8,300	8,650	8,990	9,280	9,490
0 - 4	938	884	870	883	867	823	771
5 - 9	939	886	822	834	852	841	801
10 - 14	901	920	870	818	822	840	831
15 - 19	765	883	903	855	865	810	880
20 - 24	560	743	860	881	835	788	704
25 - 29	621	541	719	834	856	813	788
30 - 34	621	597	521	696	808	832	792
35 - 39	514	594	573	502	672	783	808
40 - 44	406	486	564	546	480	645	754
45 - 49	310	377	453	527	513	452	610
50 - 54	272	281	343	415	486	474	419
55 - 59	233	239	248	304	369	434	425
60 - 64	183	194	200	208	257	314	371
65 - 69	137	142	151	157	165	206	253
70 - 74	101	94.0	98.2	106	111	118	149
75 - 79	57.8	56.9	53.9	57.0	62.3	66.1	71.1
80 - 84	23.6	23.6	23.7	22.8	24.6	27.4	29.6
85 +	9.01	8.16	8.13	8.28	8.18	8.82	9.98
0 - 14	2,780	2,700	2,580	2,540	2,540	2,500	2,400
20 - 34	1,800	1,880	2,100	2,410	2,500	2,430	2,360
35 - 44	920	1,080	1,140	1,050	1,150	1,430	1,560
45 - 64	998	1,090	1,240	1,450	1,630	1,670	1,830
15 - 64	4,490	4,940	5,380	5,770	6,080	6,350	6,570
65 +	328	325	335	351	371	426	513

## APPENDIX IV—YUGOSLAVIA

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	12.04	10.05	8.07	12.36	10.20	8.13	11.72	9.89	8.02
5 - 9	12.07	9.49	8.39	12.37	9.64	8.44	11.77	9.33	8.33
10 - 14	11.59	9.29	8.69	11.87	9.45	8.76	11.31	9.13	8.62
15 - 19	9.79	9.70	8.66	10.08	9.88	8.74	9.51	9.52	8.57
20 - 24	7.23	10.01	8.28	7.38	10.18	8.37	7.09	9.83	8.19
25 - 29	8.09	9.49	8.00	8.18	9.64	8.11	8.00	9.34	7.90
30 - 34	8.00	7.86	8.21	8.18	8.04	8.35	7.81	7.67	8.07
35 - 39	6.77	5.70	8.37	6.77	5.80	8.52	6.77	5.60	8.21
40 - 44	5.52	6.27	7.83	5.35	6.31	7.95	5.70	6.22	7.71
45 - 49	4.39	6.04	6.34	4.08	6.09	6.43	4.70	5.98	6.25
50 - 54	3.99	4.94	4.44	3.58	4.80	4.42	4.41	5.08	4.46
55 - 59	3.37	3.79	4.62	3.07	3.51	4.48	3.67	4.08	4.77
60 - 64	2.67	2.74	4.07	2.41	2.40	3.91	2.92	3.09	4.24
65 - 69	1.91	2.13	2.89	1.80	1.81	2.67	2.01	2.46	3.12
70 - 74	1.38	1.39	1.76	1.33	1.22	1.57	1.43	1.57	1.97
75 - 79	0.76	0.74	0.87	0.76	0.66	0.75	0.76	0.83	1.00
80 - 84	0.31	0.28	0.37	0.31	0.26	0.31	0.31	0.29	0.43
85 +	0.12	0.10	0.12	0.12	0.10	0.11	0.11	0.10	0.14
0 - 14	35.70	28.83	25.15	36.59	29.29	25.33	34.80	28.35	24.96
20 - 34	23.32	27.36	24.50	23.74	27.86	24.82	22.90	26.84	24.16
35 - 44	12.29	11.97	16.20	12.12	12.11	16.47	12.47	11.82	15.92
45 - 64	14.42	17.51	19.48	13.15	16.80	19.24	15.69	18.23	19.73
15 - 64	59.83	66.53	68.83	59.08	66.65	69.27	60.57	66.41	68.38
65 +	4.48	4.64	6.02	4.33	4.06	5.40	4.63	5.24	6.66

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	7,600	7,870	8,140	8,420	8,690	8,900	9,050
0 - 4	891	828	822	838	818	778	728
5 - 9	895	838	788	788	802	781	754
10 - 14	860	870	818	788	770	788	780
15 - 19	723	841	851	802	768	758	778
20 - 24	539	701	817	828	782	787	741
25 - 29	608	517	674	787	800	756	715
30 - 34	594	580	494	646	756	771	731
35 - 39	515	563	552	472	619	727	743
40 - 44	433	486	534	524	450	592	698
45 - 49	357	407	458	504	497	428	566
50 - 54	335	331	378	428	473	468	404
55 - 59	279	302	300	344	391	435	432
60 - 64	222	239	260	260	300	344	384
65 - 69	153	174	188	207	209	244	282
70 - 74	109	105	120	132	147	150	178
75 - 79	57.9	60.9	59.4	69.6	77.6	87.7	90.9
80 - 84	23.3	22.7	24.5	24.5	29.5	33.6	38.9
85 +	8.70	7.83	7.79	8.59	9.00	10.9	12.9
0 - 14	2,650	2,540	2,430	2,390	2,390	2,360	2,260
20 - 34	1,740	1,800	1,990	2,260	2,340	2,260	2,190
35 - 44	948	1,050	1,090	996	1,070	1,320	1,440
45 - 64	1,190	1,280	1,400	1,540	1,660	1,680	1,790
15 - 64	4,610	4,970	5,320	5,600	5,820	6,020	6,190
65 +	352	370	400	442	472	526	603

Notes on page 314.

## APPENDIX IV—U. S. S. R.

Age Groups	Total Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	174,000	189,000	203,000	216,000	228,000	240,000	251,000
0 - 4	23,600	24,400	23,800	23,000	22,300	22,500	22,300
5 - 9	17,700	22,400	23,300	22,700	22,200	21,700	21,800
10 - 14	21,200	17,400	22,000	22,800	22,400	21,900	21,600
15 - 19	16,600	20,900	17,200	21,800	22,700	22,100	21,700
20 - 24	14,500	16,200	20,500	16,800	21,400	22,300	21,900
25 - 29	16,600	14,100	15,800	19,900	16,500	21,000	21,800
30 - 34	13,900	16,100	13,700	15,400	19,500	16,200	20,600
35 - 39	11,900	13,400	15,700	13,400	15,100	19,100	15,800
40 - 44	8,610	11,400	13,000	15,200	13,000	14,700	18,700
45 - 49	6,880	8,230	11,000	12,500	14,700	12,600	14,200
50 - 54	6,040	6,480	7,780	10,400	11,900	14,000	12,000
55 - 59	5,010	5,550	5,970	7,200	9,650	11,100	13,000
60 - 64	4,080	4,410	4,920	5,330	6,460	8,680	9,980
65 - 69	3,120	3,380	3,680	4,140	4,520	5,500	7,430
70 - 74	2,120	2,340	2,550	2,800	3,180	3,500	4,300
75 - 79	1,300	1,360	1,520	1,670	1,860	2,130	2,370
80 - 84	502	633	678	770	861	971	1,130
85 +	177	195	242	272	312	357	412
0 - 14	62,500	64,200	68,900	68,600	66,900	66,100	65,800
20 - 34	45,000	46,500	50,100	52,200	57,400	59,500	64,400
35 - 44	20,500	24,900	28,700	28,600	28,100	33,800	34,500
45 - 64	22,000	24,700	29,600	35,400	42,600	46,300	49,200
15 - 64	104,000	117,000	126,000	138,000	151,000	162,000	170,000
65 +	7,200	7,910	8,670	9,650	10,700	12,500	15,600

Age Groups	Male Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	83,300	91,200	98,400	105,000	112,000	118,000	124,000
0 - 4	11,900	12,300	11,900	11,800	11,300	11,400	11,300
5 - 9	8,830	11,300	11,900	11,400	11,200	11,000	11,100
10 - 14	10,600	8,680	11,100	11,500	11,300	11,000	10,800
15 - 19	8,190	10,400	8,560	11,000	11,400	11,100	10,800
20 - 24	7,240	8,000	10,200	8,390	10,800	11,200	11,000
25 - 29	8,020	7,040	7,800	9,940	8,210	10,600	11,000
30 - 34	6,610	7,790	6,850	7,610	9,730	8,050	10,400
35 - 39	5,380	6,400	7,570	6,680	7,440	9,530	7,900
40 - 44	3,790	5,180	6,180	7,330	6,490	7,210	9,310
45 - 49	3,020	3,600	4,940	5,910	7,040	6,220	6,970
50 - 54	2,720	2,810	3,360	4,640	5,570	6,660	5,900
55 - 59	2,260	2,460	2,550	3,070	4,250	5,130	6,160
60 - 64	1,780	1,950	2,140	2,240	2,710	3,760	4,570
65 - 69	1,330	1,440	1,590	1,760	1,850	2,450	1,700
70 - 74	874	964	1,050	1,170	1,300	1,380	1,700
75 - 79	512	536	599	660	744	838	900
80 - 84	194	235	252	287	321	369	422
85 +	56.8	68.3	82.5	91.5	105	120	140
0 - 14	31,300	32,300	34,700	34,500	33,800	33,400	33,300
20 - 34	21,900	22,800	24,900	25,900	28,700	29,900	32,400
35 - 44	9,170	11,600	13,800	14,000	13,900	16,700	17,200
45 - 64	9,780	10,800	13,000	15,900	19,600	21,800	23,600
15 - 64	49,000	55,600	60,200	66,800	73,600	79,500	84,100
65 +	2,970	3,240	3,570	3,970	4,320	4,960	6,310

## APPENDIX IV—U.S.S.R.

Age Groups	Percentage Age Distribution								
	Total			Males			Females		
	1940	1955	1970	1940	1955	1970	1940	1955	1970
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
0 - 4	13.58	10.64	8.87	14.28	11.02	9.13	12.93	10.27	8.62
5 - 9	10.17	10.50	8.71	10.60	10.83	8.97	9.78	10.18	8.46
10 - 14	12.20	10.59	8.59	12.72	10.92	8.81	11.72	10.27	8.39
15 - 19	9.55	10.08	8.63	9.83	10.45	8.81	9.28	9.73	8.46
20 - 24	8.36	7.78	8.71	8.69	7.97	8.89	8.05	7.60	8.54
25 - 29	9.56	9.22	8.71	9.63	9.44	8.89	9.50	9.01	8.54
30 - 34	7.99	7.14	8.20	7.93	7.23	8.41	8.03	7.05	7.99
35 - 39	6.82	6.19	6.30	6.46	6.35	6.39	7.16	6.05	6.22
40 - 44	4.95	7.02	7.44	4.55	6.96	7.52	5.33	7.08	7.35
45 - 49	3.96	5.78	5.66	3.63	5.61	5.63	4.27	5.93	5.68
50 - 54	3.48	4.81	4.77	3.27	4.41	4.77	3.67	5.19	4.78
55 - 59	2.88	3.33	5.19	2.71	2.92	4.98	3.04	3.72	5.39
60 - 64	2.35	2.46	3.97	2.14	2.13	3.69	2.54	2.78	4.24
65 - 69	1.80	1.91	2.96	1.60	1.67	2.55	1.98	2.14	3.35
70 - 74	1.22	1.29	1.71	1.05	1.11	1.37	1.38	1.47	2.04
75 - 79	0.75	0.77	0.94	0.61	0.63	0.73	0.87	0.91	1.15
80 - 84	0.29	0.36	0.45	0.23	0.27	0.34	0.34	0.44	0.55
85 +	0.10	0.13	0.16	0.07	0.09	0.11	0.13	0.16	0.21
0 - 14	35.95	31.72	26.18	37.61	32.77	26.52	34.43	30.73	25.47
20 - 34	25.91	24.14	25.63	26.25	24.64	26.19	25.59	23.66	25.08
35 - 44	11.78	13.22	13.74	11.01	13.31	13.91	12.49	13.13	13.57
45 - 64	12.66	16.38	19.59	11.74	15.06	19.08	13.52	17.63	20.10
15 - 64	59.89	63.81	67.59	58.83	63.46	67.98	60.87	64.15	67.22
65 +	4.15	4.46	6.22	3.56	3.77	5.10	4.70	5.12	7.31

Age Groups	Female Population (000's omitted)						
	1940	1945	1950	1955	1960	1965	1970
Total	90,500	97,900	105,000	111,000	117,000	122,000	128,000
0 - 4	11,700	12,100	11,700	11,400	11,000	11,100	11,000
5 - 9	8,850	11,100	11,400	11,300	11,000	10,700	10,600
10 - 14	10,600	8,720	10,900	11,400	11,100	10,800	10,700
15 - 19	8,400	10,500	8,590	10,800	11,300	11,000	10,800
20 - 24	7,280	8,220	10,300	8,430	10,600	11,100	10,900
25 - 29	8,600	7,090	8,020	10,000	8,260	10,400	10,800
30 - 34	7,270	8,340	6,890	7,820	9,790	8,100	10,200
35 - 39	6,480	7,030	8,100	6,710	7,630	9,580	7,940
40 - 44	4,820	6,260	6,810	7,860	6,530	7,450	9,380
45 - 49	3,860	4,630	6,030	6,580	7,620	6,340	7,250
50 - 54	3,320	3,670	4,420	5,760	6,300	7,310	6,100
55 - 59	2,750	3,090	3,420	4,130	5,440	5,920	6,880
60 - 64	2,300	2,460	2,780	3,090	3,750	4,920	5,410
65 - 69	1,790	1,940	2,090	2,180	2,670	3,250	4,280
70 - 74	1,250	1,380	1,500	1,630	1,880	2,120	2,600
75 - 79	783	825	921	1,010	1,120	1,290	1,470
80 - 84	308	398	426	483	540	602	706
85 +	120	127	159	180	207	237	272
0 - 14	31,200	31,900	34,200	34,100	33,100	32,700	32,500
20 - 34	23,200	23,700	25,200	26,300	28,700	29,600	32,000
35 - 44	11,300	13,300	14,900	14,600	14,200	17,000	17,300
45 - 64	12,200	13,900	16,700	19,600	23,100	24,500	25,600
15 - 64	55,100	61,300	65,400	71,200	77,200	82,100	83,800
65 +	4,250	4,670	5,100	5,680	6,420	7,500	9,330

Notes on page 314.



## NOTES TO TABLES

**Europe (excluding the U.S.S.R.)**

Excludes the following areas for which projections were not made: Andorra, Channel Islands, Danzig, Faroe Islands, Gibraltar, Iceland, Isle of Man, Liechtenstein, Luxemburg, Malta, Monaco, San Marino, Spitzbergen, Turkey in Europe, and the Vatican. The aggregate population of these areas in 1939 was 2.7 million.

**United Kingdom and Ireland**

Excludes the Channel Islands and the Isle of Man.

**Portugal**

Includes Azores and Madeira.

**Spain**

Includes the Canary Islands.

**Albania**

Results carried to two significant figures in view of paucity of basic data. Fertility ( $F_0$ ) taken as  $1.05F_0$  for Yugoslavia.

**Lithuania**

Estimates of births, deaths, and migration were used to bring the 1923 census results to 1934, from which the projections start.

**Poland**

Base population includes 192 thousand males in army camps for which the age distribution was not given by the census and had to be estimated.

## CRITICAL DATES FOR THE PROJECTIONS

Country	Base Census 1	Base Fertility Schedule	Birth Projection Starts
England & Wales	1931	1936-1938	6/1936
Ireland	1936	1935-1937	6/1936
N. Ireland	1937	1936-1938	1/1937
Scotland	1931	1938	6/1936
Austria	1939	1938-1939	6/1939
Belgium	1931	1939	1/1941
Czechoslovakia	1931	1935-1936	1/1936
France	1931	1934-1936	1/1936
Germany	1939	1937-1938	6/1939
Hungary	1931	1936-1938	1/1941
Netherlands	1931	1935-1937	1/1941
Switzerland	1931	1938-1939	1/1941
Denmark	1935	1937-1939	1/1941
Estonia	1934	1936-1938	1/1939
Finland	1931	1937-1938	1/1936
Latvia	1935	1937-1939	1/1940
Norway	1931	1936-1938	1/1941
Sweden	1936	1935-1937	1/1941
Italy	1936	1935-1937	6/1936
Portugal	1931	1931-1940	1/1941
Spain	1931	1930-1932	1/1941
Albania	1930		6/1930
Bulgaria	1935	1938-1940	1/1940
Greece	1928	1937-1938	6/1938
Lithuania	*	1938-1939	1/1939
Poland	1932	1936-1938	1/1937
Roumania	1931	1936	1/1941
Yugoslavia	1931	1936-1938	6/1936
U. S. S. R.	1939	1938	1/1940

<sup>1</sup> Censuses taken as of the end of the year are listed as of the first of the following year.

\* See page 314.

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